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Editorial Staff

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Lemon Balm (*Melissa officinalis* L.) Crude Leaf Extract as Putative HIV-1 Protease Inhibitor, An In-Vitro Study

Ganade, E. M. D., Gempersaw, C. B. T., Giducos, A. J., Go, L. J., Codoy, C. K. C., Goned, A. M. A., Gonzales, M. L. I. J., Granada, J. R. B., Guerra, J. M. S., Gupeteo, C. D., Hassan, M. J., Imaizumi, A. M., Javelona, R. Q. J., Kanda, S. N. D., and Kiamko, R. B.

COLLEGE OF MEDICINE | 2019

The crude leaf extract of Lemon Balm (*Melissa officinalis* L.) at concentrations of 100 ug/mL, 50 ug/mL, 25 ug/mL and 12.5 ug/mL was tested for HIV-1 anti-protease activity. Microplate wells were used and the fluorescence of the wells corresponding to the enzyme activity were measured using the Varioskan multi-mode microplate reader at Ex/Em = 330/450 nm for three hours. Pepstatin A was used as a positive control. Triplicate measurements showed that the mean percent inhibition of the plant samples with concentration of 12.5 ug/mL, 25 ug/mL, 50 ug/mL, 100 ug/mL and the positive control were 78.21%, 82.61%, 87.80%, 95%, and 50%, respectively. Median inhibitory concentration (IC₅₀) of 2.28 ug/mL was calculated using Probit Analysis. Statistical analysis using ANOVA showed that concentrations 100 ug/mL and 50 ug/mL showed a significant difference when compared to the positive control. The inhibitory property can be attributed to the presence of tannins and alkaloids which were present in the extract. Further testing using FTIR showed the presence of hydroxyl, alkane, nitriles and carbanes on the crude leaf extract. Lemon balm (*Melissa officinalis* L.) crude leaf extract may provide a basis for the development of novel HIV-1 protease inhibitor.

Keywords: *Lemon balm, HIV, HIV-1 protease, pepstatin A, leaf extract*

Potential Effect of Goosegrass (*Eleusine indica*) Ethanollic Extract as an Anti-Hyperuricemic Agent in Mice (*Mus musculus*)

Calunsag, A., Sandoval, P. C., Torreon, C. D. J., Tolentino, O. G., Tizon, L. R., Torino, R. A., Tugay, R. Jr., Tamuram, R. N., Ty, T. J., Umbana, A. T., Uy, M. C., Vallar, L. M., Valmores, K. G., Vidal, K. M., and Maru, K.

COLLEGE OF MEDICINE | 2019

Hyperuricemia is one of the common risk factors of some overlooked diseases such as gout, the disease most associated with hyperuricemia, in which approximately 16 million Filipinos are affected. *Eleusine indica* (Goosegrass), a traditional herb, poses as an option in alleviating the condition. Serum uric acid (SUA) levels were obtained from 30 albino mice, each of which was first induced into a hyperuricemic state using pyrazinamide. Employing the randomized control trial, they were divided into negative control, positive control and treatment groups and were administered with distilled water, Allopurinol and *E. indica* ethanollic extract, respectively. After 14 days of administration, the average SUA during induction and after treatments were noted. There was a small increase noted in the negative control group that is not significant. A significant decrease of 3.1 mg/dL was noted in the positive control group. Lastly, there was a decrease from 7.3 mg/dL to 5.9 mg/dL in the treatment group, but not significant. Pre-treatment and post-treatment SUA showed no significant difference except for Allopurinol as it is the standard treatment for hyperuricemia. The Goosegrass extract showed no significant difference. This might be because of various reasons: the duration of treatment was too short, luteolin as a pure extract is better in lowering SUA, and bacteria in the small intestine of mice can degrade quercetin and luteolin thereby inhibiting its absorption, among others. This indicated the *E. indica* ethanollic extract have no effect in improving serum uric acid levels.

Keywords: *Goosegrass, hyperuricemia, ethanollic extract, SUA*

Diuretic Activity of Ethanolic Root Extract of *Eleusine indica* on Albino Rats and Determining its Acute Toxicity, Approximate Effective Dose and Mean Effective Dose

Resmundo, M. R., Pañgan, C. G., Paras, S. J., Parcia, D. B., Pausal, E. P., Pautong, A. J., Pelaez, G. J., Pelaez, F. J., Pelaez III, J., Rabor, K. A., Ramirez, J. B., Rapacon, K. E. M, Retiza, S. S. S., and Samaniego, C.

COLLEGE OF MEDICINE | 2019

The study aimed to determine the diuretic effect of *E. indica* root extract in albino rats. This involved tests to determine the Acute Toxicity, AED, and ED50, and to compare the activity to ED 90, Double Dose, Positive Control (PC) and Negative Control (NC). In the study, the root of *E. indica* was collected, air-dried and extracted using 95% ethanol. The animals were randomly selected and placed in their respective cages, following a one-rat-one-cage design. The cages were modified to allow the separation of urine and feces where pediatric urine collector was attached below the cages to allow accumulation of urine. Acute toxicity testing showed that at 2000 mg/kg body weight did not produce any toxic side effects on albino rats. Thus, toxicity dose is 2000 mg/kg body weight. The results also showed that ED50, ED90, Double Dose and PC exhibited significant diuretic effect as evidenced by the increased in the 24hr urine output of the albino rats. Furthermore, the Double Dose is the only dose that has no significant difference on PC. Thus, this said dose could be used effectively as a diuretic.

Keywords: *Diuretic activity, ethanolic, root, Eleusine indica, albino rats*

InVivo Evaluation of Antiasthmatic Potential of Paragis (*Eleusine indica*) Plant Through Inhibition of Mast Cell Degranulation in Female Albino Mice

Camino, P. T. A., Candao, D. J. P., Cano, M. J. V. S., Carabuena, L. D., Casabar, H. L., Catangui, R. A. E., Caumban, J. P., Cereno, C. C., Continedas, C. P., De Chavez, A. T., De Lima, A. L. T., Doong, S. R., Doria, I. T. L., Edding, S. W., and Egang, S. M. R.

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The Aqueous and Ethanolic extracts of *Eleusine indica* were investigated for antiasthmatic activity through clonidine-induced catalepsy and mast cell degranulation. The duration of clonidine-induced catalepsy in mice pretreated with *Eleusine indica* extracts (100 mg/kg and 200 mg/kg) and Chlorpheniramine maleate (10mg/kg) were measured at 15, 30, 60, 90, and 120 minutes using the bar test. The Aqueous and Ethanolic extracts were similarly screened for effectivity in protecting the mast cell against clonidine-induced degranulation. Pre-treatment with 200 mg/kg of Aqueous and Ethanolic extracts significantly lowered the duration of catalepsy in mice as compared with the negative control group. For the clonidine-induced mast cell degranulation, mast cell counting was not completed since the mast cell culture did not produce sufficient number of mast cell for counting. However direct staining was performed and it confirmed that indeed, there was the presence of intact and disrupted mast cell but was not quantified further. These results suggest that the Aqueous and Ethanolic extracts of *Eleusine indica* possess anti-asthmatic activity.

Keywords: *Paragis, Eleusine indica, Antiasthmatic property, Clonidine induced-catalepsy, Clonidine-induced Mast Cell Degranulation*

Amoebicidal Effect of Mangosteen (*Garcinia Mangostana*) Pericarp Extract on *Entamoeba histolytica*

Sayon, G. Z. E., Rosete, T. M. L., Pinsoy, M. M. L., Respeto, K. P. P., Reyes, R. K. C., Roche, C. M. I., Rojo, J. M. E., Romanes, R. C., Sale, S. N., Saligan, K. A. P., Sanchez, J. M. G., Sanico, J. P., Sembrano, I. M., and Sevilla, C. C.

COLLEGE OF MEDICINE | 2019

Amoebiasis caused by *Entamoeba histolytica* is ranked as the third leading parasitic cause of human mortality around the world. This study aimed to discover whether an amoebicidal effect from Mangosteen pericarp extract exists against *Entamoeba histolytica*. Female albino rats were inoculated orally with *E. histolytica* cysts derived from fresh stool samples for six consecutive days. Determination of infection was to be conducted using enzyme-linked immunosorbent assay. After 52 days of observation post-inoculation, only 11.53% of the rats manifested signs of successful inoculation with a positive direct fecal smear result and diarrhea. Histopathologic analysis of the liver revealed that all rats had hepatic congestion, while two of those who passed parasite in their stool had parenchymal lymphoplasmacytic infiltrate. Analysis of the cecal samples revealed that 91.67% had chronic inflammation (presence of lymphocytes and plasma cells in the lamina propria). Of those with chronic inflammation, 95.45% showed active neutrophilic infiltration. Despite having a lead time of nearly two months and utilizing concentrated stool specimens, our results suggest that oral inoculation of *E. histolytica* cysts via gastric lavage is not an effective means of inducing *E. histolytica* infection in rats. Recommendations of the study include consideration of a surgical intracecal approach in order to best maximize time and resources in inducing infection.

Keywords: *Entamoeba histolytica*, amoebiasis, antiprotozoal, metronidazole, Mangosteen, pericarp extract

Potential Effect of Durian (*Durio zibethinus*) Leaf Extract on In Vitro Platelet Aggregation

Sevilla, C. J., Sobong, K. R., Solaiman, H., Subron, B., Sulaiman, N., Sumagaysay, S., Sumalde, M. J., Tablazon, A., Taganahan, C., Tajan, A., Tamondong, J. C., Tan,

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Durian (*Durio zibethinus*) is a seasonal fruit grown in Southeast Asia that belongs to the Bombacaceae family. Widely known as the “King of Fruits”, durian is distinctive for its large size, unique odor and taste, and formidable thorn-covered husk. Flavonoids, a group of polyphenolic compounds, are present in the leaves of Durian and has shown to be effective inhibitors of platelet aggregation by affecting the production of thromboxane A₂ in the cyclooxygenase pathway. Hence, the study of the potential effect of Durian (*Durio zibethinus*) leaf extract on in vitro platelet aggregation. 10 healthy volunteers of ages 20 to 30 with no history of any chronic disorders, cardiovascular disease, recent surgeries, and platelet count falling in the normal range of 150,000 to 450,000 uL of blood after screening were selected in the study. The study utilized an experimental study design of which different volumes (5, 10, 25 and 50 uL) of ethanol and methanol durian leaf extracts were compared with the Aspirin and Distilled water to determine its effects after induction of platelet aggregation in the blood samples (480 uL) using 20 uL of 3 uM adenosine diphosphate (ADP). Baseline and post-treatment values were quantitated via manual platelet counting using stained blood smears from the blood samples. Percent platelet aggregation were computed and results showed that at 95% confidence interval the different volumes of the ethanol and methanol durian leaf extracts have no significant difference. Therefore, the intervention of the ethanolic and methanolic leaf extracts has no significant effect in inhibiting in-vitro platelet aggregation.

Keywords: *Durian, Leaf Extract, Platelet Aggregation*

Anti-Inflammatory Effect of Paragis (*Eleusine indica*) Ethanolic Plant Extract on Inflammation-induced Wistar Albino Rats

Caguimbaga, C. J. S., Buxani, P. J. J., Catalbas, M. R. E., Cachero, S. J. E. A., Chen, D. C., De Guzman, M. A. P., Dela Cruz, C., Dela Cruz, D. M. C., Dayao, P. K. A., De los Reyes IV, P. C., Burdeos, A. R. E., Cabuslay, E. J. S., Cabilao, T. A., Dalisay, J. S., and Curaza, A. M. R.

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Inflammation is a common protective response of the body against any agent that causes injury. This response aids in the process of eliminating injurious foreign bodies and repair. Longstanding inflammation can eventually cause serious diseases and conditions if not treated promptly. Available in the market are several drugs that can alleviate inflammation; however, some of these drugs come with their unlikeable side effects and may be expensive to some patients. Several studies have shown that Paragis (*Eleusine indica*) contains flavonoids, which could be the reason for the anti-inflammatory activity of the plant. This study was carried out to determine if Paragis possess significant anti-inflammatory properties when compared to an already known anti-inflammatory agent through a randomized controlled experiment using albino rats. Inflammation is induced in the rats using carrageenan. Aspirin, 100 mg/kg (positive control), normal saline solution (negative control), and low (200 mg/kg), medium (400 mg/kg) and high (600 mg/kg) doses of Paragis were given to determine which one shows a significant reduction of inflammation through rat hind-paw circumference measured one, two, three, four and five hours after induction of inflammation. Results showed that there is no significant difference in the effectiveness of the low, medium, and high doses of Paragis to that of the positive control, aspirin, in the anti-inflammatory effect after treatment. However, on the 5th hour, results show a significant difference between the groups, and the high dose Paragis may have the same effect with the positive control.

Keywords: *Eleusine indica*, Anti-inflammatory, animal study

Anti-Proliferative Property of the Aqueous and Ethanolic Extracts of *Eleusine indica* L. (Paragis) against Human Lung Cancer A549 Cell Line

Deocampo, R. J. A., Diano, J. L., Dionglay, J. C. P., Dioniso, A. M. C., Dimaren, A. A., Dueñas, B. O., Duero, M. C., Dura, C. A. G., Encabo, B. D., Fanuncial, J. P. G., Filipinas, L. C. L., Gadjali, M. U., and Gallardo, C. M. R.

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Eleusine indica L. or Paragis, a medicinal plant found in settled areas in the Philippines, is traditionally used for its diuretic, anti-inflammatory, and antibacterial effects. This study aimed to provide evidences on its therapeutic properties by determining the anti-proliferative property of *E. indica* against human lung cancer cell line A549 using methyl thiol tetrazolium (MTT) cytotoxicity assay. Aqueous and ethanolic extraction was performed on *E. indica* whole plant. Phytochemical analysis demonstrated the presence of flavonoids in both extracts. Different concentrations (120, 60, 30, 15, 7.5, 3.75 µg/mL) of the aqueous and ethanolic extracts were used. An increasing trend of inhibition on human lung cancer cell line A549 was seen with increasing concentration of the extracts on MTT cytotoxicity assay. However, although anti-proliferative activity was seen, it is unlikely for the development as chemotherapeutic drug (IC₅₀: 30g/ml). Statistical analysis showed no significant difference among the IC₅₀ of aqueous and ethanolic extracts.

Keywords: *Eleusine indica*, cancer cell line, cytotoxicity

Effect of Fresh Papaya (*Carica papaya*) Leaf Extract in the Peripheral Blood Counts of Azathioprine-induced Pancytopenia in Rats

Nerpiol, J. M., Akmad, S. A., Aquino, S. R., Benson, J., Betaizar, M. W., Boniao, R. K., Cabada, A. J., Hernandez, M., Ibay, E. M., Ramo, K. R., Salvado, R. A., Satol, H., Tomaro, I., and Tuquib, J. M.

COLLEGE OF MEDICINE | 2019

Azathioprine is an immunosuppressive drug which is indicated for post-renal transplantation, systemic lupus erythematosus, dermatomyositis, eczema, psoriasis, rheumatoid arthritis, and Crohn's disease. Dose-related causes, gene polymorphism, and drug-to-drug interaction may lead to certain adverse effects such as myelosuppression and pancytopenia. Studies showed that several phytochemical properties of papaya leaves can help improve the hematologic values of the test subjects and can hasten the recovery of those who have decreased blood cell counts. This study was conducted to determine the effect of fresh papaya leaf extract in the peripheral blood cell counts of rats induced with pancytopenia using azathioprine. Fourteen female rats were used as test subjects and were divided into two groups – control and treatment group. Experimental research design was used. The test subjects were weighed and baseline peripheral blood cell counts were determined. The test subjects were then administered with 100 mg/kg body weight dose of azathioprine for 10 consecutive days to induce pancytopenia and peripheral blood cell counts were determined thereafter. The control group did not receive any treatment while the treatment group were administered with fresh papaya leaf extract at 10 mL/kg body weight dose for 21 consecutive days. The mean differences in the peripheral blood cell counts of the two groups were recorded and compared to determine the degree of improvement of the hematologic parameters with or without the papaya leaf extract. The mean differences in the peripheral blood cell counts (platelet, RBC, WBC) between the control and treatment groups after administration of papaya leaf extract for 21 days were 215.29 ± 42.825 and 366.29 ± 98.55 , 3.29 ± 0.45 and 5.29 ± 0.7 , and 3.65 ± 1.07 and 6.25 ± 0.79 , respectively, with significant differences between values. Results indicated statistically significant results. Thus, the treatment with papaya leaf extract hastened the recovery of rats with azathioprine-induced pancytopenia compared to those who did not receive any treatment.

Keywords: *papaya, leaf extract, peripheral blood count, azathioprine-induced pancytopenia*

Detection of Fungi (*Cryptococcus neoformans*) Among the Community Volunteers of Barangay Tambo, Samal, Davao del Norte using Enzyme-Linked Immunosorbent Assay

Lagurin, P. A., Lascuña, J. C., Laude, A. A., Laurico, R. D., Lee, E. P., Leong, O-J. D., Lomadilla, F. P., Lucero, C. A., Lumakin, C. L. U., Macrohon, J. M. P., Madrangca, E. J. B., Maduay, R. M. R., Maligad, N. K. A., and Margas, A. D. M.

COLLEGE OF MEDICINE | 2019

Cryptococcus neoformans was known to be the recognizable major opportunistic pathogen which can cause deadly consequence. It has been found in nature worldwide in association with bird droppings and bat guano. It occurs mainly in tropical and subtropical regions. The study focused on the detection of *Cryptococcus neoformans* antigen in blood samples of people living within the one kilometer radius infective zone in Barangay Tambo, Samal, Davao del Norte. The qualified participants ages 18 to 65 years old, with or without of present illness and maintenance drugs. There were 87 participants who volunteered in which most of the participants came from 18 to 29 years old (26 participants) and those between 42 to 53 years old had the least number (16 participants). Of the 87 participants, 60 were female and 27 were males. The serum samples were analyzed using IMMY CrAg Enzyme-linked Immunosorbent Assay with sensitivity and specificity of 100% and 99.8%, respectively. Results showed that all serum samples yielded 0.265 OD which means that none tested positive for *Cryptococcus neoformans* antigen. This would further mean that people may safely live near the bat cave and this does not pose a threat in their health and to the tourists visiting the bat caves.

Keywords: *Cryptococcus neoformans*, fungi, CrAg, ELISA, Samal

Anti-hyperlipidemic Effect of Crude Ethanolic Extract and Decoction Extract of the Whole Plant of *Eleusine indica* (Paragis) on the Lipid Serum Levels of Female Sprague Dawley Rats

Escuadro, M. C. C., Estabillo, G. V., Estillore, A. V. O., Estoque, R. J. B., Fabella, V. D. E., Facultad, R. A. T., Frialess, J. K. F., Galinea, C. I. S., Garay, C. M. T., Gaspar, P. L. B., Gealon, N. K. P., Gonzaga, J. J. M., Gretare, A. J. R., Gutierrez, D. L. R., and Hipulan, L. R. A.

COLLEGE OF MEDICINE | 2019

Eleusine indica (Paragis) is an abundant weed along the riverbanks, roads and settled places in warmer areas around the world including the Philippines. Known for its antidiabetic, antihypertensive, anti-inflammatory, antibacterial, and other properties, Paragis, however, is still yet to be thoroughly examined as there are only few studies on its lipid lowering effects especially in the local setting. This study aimed to provide more data on the lipid lowering effects of Paragis on mice and its appropriate dose without causing toxicity. Study was performed on 50 female Sprague-Dawley rats in two major groups: Control (normal, negative, and positive) and Experimental (extract, and decoction). An in vivo randomized clinical trial design was utilized to determine the hyperlipidemic activity of the ethanolic extract and decoction of the whole plant. Results showed that there is significant difference in the cholesterol, triglyceride, HDL and LDL levels between those fat-induced (negative) control group and fat-induced extract-treated group. The study demonstrated a significant lipase inhibition of Paragis extract on high fat-induced rats when compared to high-fat induced rat without intervention. Furthermore, the extract showed no significant difference with the lipid results of those high-fat induced rats treated with Orlistat except for the triglycerides. Further studies should be done to explore the extent of its efficacy in long term.

Keywords: *Crude ethanol, decoction, whole plant, Paragis, Lipid*

Acute and Sub-acute Hepatotoxicity and Renal Toxicity of Paragis (*Eleusine indica*) Whole Plant Decoction and Methanolic Extract on Albino Rats (*Rattus norvegicus*)

Apigo, J. G. B., Abad, M. B., Abangon, A. U., Ablona, P. G. E., Adtoon, M. D. L., Advincula, J. A., Afable, K. M., Agtarap, D. G. T., Aguayo, D. M. P., Albarillo, V. I. R., Alvaro, A. B. M., Amolo, J. C. G., Ampatuan, N. B., Anayatin, J. A., and Anito, C. K.

COLLEGE OF MEDICINE | 2019

Traditional herbal medicine has been used for years but there is little documentation on their effects on the human body. This study was done to determine the acute and sub-acute hepatotoxicity and renal toxicity of Paragis (*Eleusine indica*) whole plant decoction and methanolic extract on albino rats (*Rattus norvegicus*). This study was conducted at the animal housing owned by DMSFI utilizing an in vivo experimental research design. Using a Simple Random Sampling, a total of 42 albino rats in seven groups with six rats each were used. All the procedures done in this study was guided by OECD guidelines 425 and 407. After acute and sub-acute treatments were done, the laboratory tests were conducted at Celestials Veterinary Clinic. Alanine aminotransferase and creatinine were measured for the surviving subjects and gross necropsy and histopathology on dead subjects. Results showed a significant increase in weight and insignificant change in creatinine levels in all test subjects. There was a significant decrease in ALT levels on the subacute 500 and 250 methanolic group, and acute methanolic and decoction group. The rest of the group subject and the control group showed no significant change in their ALT levels. The results collected suggest that the Paragis extract is not likely to produce any toxicological effects on the kidney and liver of the subjects.

Keywords: *Eleusine indica*, hepatotoxicity, renal toxicity, methanolic extract, whole plant decoction

Evaluation of Antibody Titer Among Rabies Post-Exposure Prophylaxis Vaccinated Individuals in Davao City

Arboly, A. A. E. C., Arakama, R. J., Arat, B. Z. D., Bacote, N. M., Baleva, R. E., Banas, J. J. D., Benignos, K. S. B., Blaya, M. C. T. L., Cabalan, E. M., Cajoles, S. J. B., Clanagian, C. K. G., Calunsag, A. M., Camaganacan, L. S. C., Camaniro, W. T. D., and Estares, M. G. P.

COLLEGE OF MEDICINE | 2019

Rabies is one of the most untreatable disease with 100% fatality but it also 100% preventable. In the Philippines, it is considered as the most acutely fatal disease, with Davao City ranking as 5th highest. This study attempted to evaluate the antibody titer among rabies post-exposure prophylaxis vaccinated individual in Davao City and assessed the maximum protectiveness of the vaccine. Moreover, the researchers also conducted an evaluation of the rabies status in Davao City from year 2013 to 2018. This investigation utilized a descriptive cross-sectional research design and purposive sampling. Primary data used ELISA method to demonstrate antibody titer while frequency and percentage for the secondary data. For the primary data, the study population was the respondents that are sorted using the inclusion and exclusion criteria of the study. The study showed that majority of the respondents were from the age group 20 to 24 years old of male sex. Almost all of the respondents remained protected after the vaccine administration with eight years mean of protection although there was 0.142 EU/mL decrease in the antibody titer every year. Hence, time is considered to contribute for the determination of antibody titer reduction. For the secondary data, the study population was all respondents on City Health Office record from year 2013 to 2018. The study showed an incidence common in age.

Keywords: *Rabies, Post-exposure Prophylaxis, Antibody Titer, Davao City, Dog Bites*

Outcomes of Rabies Pre-Exposure Prophylaxis in Davao City

Abda, G. B., Aclan, N. J. M., Acosta, F. S., Adlao, C. W. U., Adorable, J. J. A., Adorable, A. B. L., Alamis, M. K. R. N., Aliñabon, R. V., Alueden, M. F. M., Amen-Amen, B. M. B., Amparo, C. B. M., Ampoloquio, A. C. C., Andrin, C. J. T., Apion, I. A., and Aquitania, R. L. W.

COLLEGE OF MEDICINE | 2019

Rabies is a significant health problem all over the world, particularly in endemic countries like the Philippines. As the number of rabies cases increases, so does the need for rabies intensification programs. One such step undertaken by the government is the provision of free rabies pre-exposure prophylaxis (PrEP) among high-risk individuals. The primary goal of this study is to quantitatively determine the anti-rabies antibody levels of individuals who have had rabies pre-exposure prophylaxis and demonstrate the rate of decline of rabies antibody titer over time. This study intends to contribute to the growing pool of knowledge about PrEP, furthermore, strengthening the pre-existing guidelines on rabies vaccination.

Keywords: *Rabies pre-exposure prophylaxis, Rabies antibody titer, Davao City*

Antibacterial Effect of *Eleusine indica* (Paragis) Ethanolic Plant Extract Formulated Cream Against Methicillin-Sensitive *Staphylococcus aureus* on Albino Rats

Naval, J. M. T., Opamin, B. I. T., Matunog, J. P. N., Misoles, B. M. A., Muhammad, S. A. G., Nacito, Z. T., Najera, A. B., Nebrada, M. L., Orendain, M. J., Palermo, L., Panal, H., Panceras II, W. D., and Pandita, S. J.

COLLEGE OF MEDICINE | 2019

Eleusine indica has the potential to treat *Staphylococcus aureus*. This study tested the antibacterial efficacy of a cream formulated from *E. indica* ethanolic extract applied on albino rats infected with *S. aureus*. Phytochemical analysis established the basis for the antimicrobial properties of *E. indica*. Minimum inhibitory concentration (MIC) using *E. indica* extract on methicillin-sensitive *Staphylococcus aureus* (MSSA) was achieved at 4000 µg/ml. Bacterial colony counts comparing treatments of MSSA infected albino rats using the cream and Mupirocin presented similar results. These data showed that cream formulated from *E. indica* ethanolic extract could potentially be used as a cost-effective antimicrobial treatment to methicillin-sensitive *Staphylococcus aureus*.

Keywords: *Eleusine indica*, natural topical product, antimicrobial treatment, *Staphylococcus aureus*, animal study

Antifungal Activity of Katakataka (*Bryophyllum pinnatum*) Against Pure Culture of *Candida albicans* and Oral Candidiasis-Induced Mice

Obenza, A. S., Omar, A. S., Pacatang, C. V., Pahm, N. A., Pamayloan, B., Panes, M., Pangilan, I. C., Pastoril, M. L., Pelayo, R-A., Peñera, L. R. I., and Pepito, P. R.

COLLEGE OF MEDICINE | 2019

This study aimed to determine the antifungal activity of Katakataka (*Bryophyllum pinnatum*) against pure isolates of *Candida albicans* in vitro and in oral candidiasis-induced mice. Flavonoids, a large group of natural polyphenolic compounds known to be synthesized by plants in response to microbial infection, were extracted using 95% ethanol solvent. Antifungal activity was determined in-vitro through determination of minimum inhibitory concentration. A positive, negative and diluent control, together with ten different concentrations of Katakataka ethanolic extract were prepared and tested with 7.81 µg/mL as the lowest concentration and 4000 µg/mL as the highest minimum inhibitory concentration. At a concentration of 250 µg/mL to 4000 µg/mL, together with the negative and diluent control, the growth of *Candida albicans* was inhibited. The lowest concentration noted to show inhibition of the test organism was at 250 µg/mL. Functional group analysis was performed using Fourier Transform Infrared Spectroscopy and revealed the presence of alcohol and alkene functional groups. CFU mean difference showed a significant difference among the treatment groups, although all three doses of the extract had similar effectivity. However, only the medium and high doses had comparable CFU mean differences with the positive control. The CFU mean difference of the low dose gel was greater than that of the miconazole, which denotes a greater effectivity of the former. This demonstrated the Katakataka (*Bryophyllum pinnatum*) and some of its isolated compounds have interesting antifungal properties.

Keywords: *Katakataka ethanolic extract, antifungal activity, animal study*

Cytotoxic Effects of Paragis

Lariosa, A. D. S., Latras, M. M. P., Laurel, R. J. M., Lim, Z. J. E., Lomod, J. L. C., Lopez, K. W. R., Losaria, M. A. M., Loyola, D. C. E., Lualhati, C. C. V., Malang, I. A. I., Malcontento, H. R. L., Malifer, S. R. U., Maminggen, I. M., Mantilla, S. F. C., and Masendo, H. G.,

COLLEGE OF MEDICINE | 2019

Herbal products and supplements remain poorly monitored and sometimes untested for their safety despite their increasing use worldwide. Paragis (*Eleusine indica*), which has grown in popularity as a remedy of various common ailments, is one of these agents wherein cytotoxicity studies are scarce. As such, this study determined the cytotoxicity profile of Paragis through the use of Trypan Blue Exclusion Method on an ethanolic extract of the plant. Results showed that there was a significant difference in mean dead cells between the negative control (Supplemented RPMI) and the 100% Paragis extract treatment group. The mean dead cells of the diluted extract treatment were not significantly lower than the positive control (Triton X-100). The results suggested that concentrated Paragis is cytotoxic but become less so when diluted. Its cytotoxic may be attributed to the presence of phytochemicals, one which are tannins, which have been found to initiate cell death through the process of apoptosis. It can be concluded that Paragis has potential cytotoxicity and should be further studied for its safety in its use in alternative healthcare practices.

Keywords: *Cytotoxicity, Cytotoxic effects, Eleusine indica, Goose grass, Paragis*

Reproductive Toxicity of Paragis (*Eleusine indica*) Ethanolic Extract and Decoction on Male Albino Rats

Sayson, Z. M. F., San Pedro, C. C., Sanchez, L. J. A., Sebumpan, M. A. C., Senining, K. M., Sobrepeña, C. I., Solatorio, H. K. O., Suarez, J. M., Tambuli, A. P. B., Tan, J. A., Tan, S. M. V., Te, R. A. O., and Templado, J. S.

COLLEGE OF MEDICINE | 2019

The study was conducted to determine the reproductive toxicity of *Eleusine indica* (Paragis) ethanolic extract and decoction on male albino rats, by comparing histopathologic changes in the reproductive organs after 28 days of treatment. Twenty five 12 weeks old, sexually male albino rats, were used in the study and were further divided into five rats per treatment. The treatment groups included a control group, an ethanolic extract high dose (600 mg/kg) and low dose (200 mg/kg) group, as well as a decoction high dose (15 g) and low dose (6 g) groups. Results showed a total of three rats with abnormal reproductive organs wherein two were from the ethanolic extract high dose and one from the ethanolic extract low dose. Mild hyperplasia was also noted especially in the decoction groups. Incidental findings were also observed and noted, showing toxicity of both *E. indica* ethanolic extract and decoction on male rats.

Keywords: *Male productivity toxicity, ethanolic extract, decoction, Eleusine indica, paragis*

In Vitro Acetylcholinesterase Inhibitory Potential of Guso (*Kappaphycus alvarezii*) Extract

Rabaya, P. J. R., Ranay, S. G. A., Reaubit, A. K. C., Rodriguez, J. J. V., Rufule, D. G., Salce, K. M. B., Sam, A. M. L., Samanodi, A. K. A., Saquilayan, F. S. D. D. S., Sarad, C. E., Sarmiento, K. B., Seares, E. E. R., and Sebumpan, J. M. B.

COLLEGE OF MEDICINE | 2020

Neurodegenerative diseases such as Alzheimer's are widely recognized to cause dementia in the older population. One of the identified causes of this disease is the decrease of acetylcholine levels, exacerbated by the action of acetylcholinesterase. Guso (*Kappaphycus alvarezii*) is an abundant resource within the Philippines, found to have antioxidant and anti-neuroinflammatory activity. This study aimed to determine the acetylcholinesterase inhibitory activity of the *K. alvarezii* extract as part of its potential neuroprotective effects. The sample was prepared by air-drying at room temperature and submitted for extraction via Soxhlet (using ethanol) and rotary evaporator. The obtained extract was then lyophilized to powdered form and submitted for toxicological analysis, HPLC, and in vitro Acetylcholinesterase Inhibition Assay. The results showed that the *K. alvarezii* extract had an IC₅₀ of 53.14 ug/ml and that at 20 ug/ml, it was found to have the greatest inhibitory activity of the AChE enzyme. While there was no trans-Zeatin found within the sample, a substantial amount of catechin was found which can also contribute to its activity. This determined that the *K. alvarezii* extract is a potential agent to inhibit AChE.

Keywords: *Kappaphycus alvarezii*, *Acetylcholinesterase Inhibition*, *Alzheimer's disease*

In Vitro Antiangiogenic Potential of Melon-Daga (*Zehneria japonica* Thunb.) Ethanolic Fruit Extract in Duck Embryo Using In Ovo Chorioallantoic Membrane (CAM) Assay

Olaran, A. B., Ordaneza, I. M., Orpeza, V. J. D., Pabustan, S. J. B., Pagatpatan, P. J. L., Pagdilao, A. J. C., Palabyab, C. D. M., Pasaje, P. L. D., Plaza, D. J. M., Pontillo, M. E., Pua, C. G., Putian, V. R. C., and Quiñones, A. L. D.

COLLEGE OF MEDICINE | 2020

The study determined the antiangiogenic effect of Melon-daga (*Zehneria japonica* Thunb.) ethanolic fruit extract in the chorioallantoic membrane of duck embryos in vitro using an experimental study design. Thirty (30) duck eggs were used for the experimentation. A small window was made to expose the chorioallantoic membrane of duck embryos and was tested by putting treatment discs with different concentrations to the area where major vessels were present or beginning to form. Stereomicroscopic photos were taken for blood vessel counting divided into primary, secondary and tertiary vessels. Out of the thirty (30), only twelve (12) duck eggs were viable for observation. Results revealed a significant difference in the mean percent inhibition between the five (5) treatment groups with the first treatment (10 µg/mL) yielding the highest percent inhibition of 35%. However, due to the limitations and timely circumstances that occurred during the course of experimentation, the study concludes that the results cannot resolutely suggest that *Z. japonica* ethanolic fruit extracts have an antiangiogenic potential. Further studies should evaluate the in vitro and in vivo effects of *Z. japonica* fruit extract.

Keywords: *Melon-Daga, Zehneria japonica Thunb., Chorioallantoic membrane, antiangiogenic potential*

Phytochemical Analysis of *Zehneria japonica* (Thund. Ex Murray) S. K. Chen (*Cucurbitaceae*) Stem Butanol Extract using Gas Chromatography-Mass Spectrometry

Dulla, D. V., Durano, L., Edding, M., Embang, A., Enriquez, V., Espino, Y., Estabillo, G., Fabella, V. D., Fabian, E., Francisco, K., Ferrer, E. A., Gaga-a, K., Gallardo, V. J., and Garcia, A. M.

COLLEGE OF MEDICINE | 2020

The genus *Zehneria* has been used as herbal medicine for a long time due to its wide therapeutic spectrum. This study aimed to investigate the phytochemical properties of *Zehneria japonica* which was claimed to have purgative, anti-inflammatory and antiangiogenic activity. Using the stem of *Zehneria japonica*, butanol extract was utilized to test for presence of heavy metals namely cadmium, lead and mercury using Atomic Absorption Spectrophotometer (AAS), and its phytochemical characteristics using Gas Chromatography-Mass Spectrometry (GCMS). Heavy metal screening revealed increased concentration of Cadmium (0.32ppm) while Mercury (0.0217 ppm) only has a minimal amount. Lead was not detected from the extract. On the other hand, 24 compounds were identified in phytochemical profiling. Among these, eight were revealed to have substantial activity. These bioactive compounds are organic acids, esters and alcohol with biologic activities such as antimicrobial, anticancer, anti-inflammatory, hypoglycemic, and immunomodulatory effects which justifies its use as herbal medicine and further studies for drug development.

Keywords: *Zehneria japonica*, heavy metals, Atomic Absorption Spectrophotometer, phytochemical properties, Gas Chromatography-Mass Spectrometry, drug development

Coronavirus Disease (COVID-19) Epidemiology, Pathophysiology, Diagnosis, and Management: A Narrative Review

Reyes, M. R. S., Rocero, R. M. B., Robiso, K. P., Romaguera, C. P., Rosalinda, G., Sexcion, J. A. M., Sinajon, K. M. D., Sison, S. J., Sunga, J. J. B., Tac-an, R. T., Tan, M. A. A., Tan, Y. L. F., Tanquerido, M. J. S., Tecson, M. J. C., and Uy, A. P. C.

COLLEGE OF MEDICINE | 2020

At the end of 2019, COVID-19 arose in Wuhan, China. The first suspected case in the Philippines was on January 20, 2020. By March 1, there were already 633 positive patients in the country. Since then, the number of cases has been increasing worldwide, leading to its declaration as a global pandemic. The disease is potentially zoonotic with a low to moderate mortality rate. Transmission may occur from person-to-person through contact or droplets when there is lack of proper personal protective equipment and disinfection. Patients with COVID-19 have symptoms that usually begin with fever, dry cough, shortness of breath and fatigue. Furthermore, symptoms may include multiple systems, including the respiratory, gastrointestinal, and neurologic. Some patients may, however, remain asymptomatic. Social distancing is highly suggested to prevent transmission from asymptomatic patients, as well as those with mild and unnoticeable symptoms. Diagnosis of the disease is mainly through real-time reverse-transcription polymerase chain reaction (RT-PCR) and testing is done on both symptomatic patients and those suspected to have been exposed to the virus. Currently, there are no definite treatments for COVID-19 and studies are still ongoing for the understanding of the disease from the immediate source of the virus to its management.

Keywords: *coronavirus, COVID-19, diagnosis, management, pandemic, pathogenesis*

Potential Anti-HIV-1 Properties of Lemon Balm (*Melissa officinalis* L.) Leaf Extracts: A Literature Review

Llido, J. C. C., Juele, L., Kesid, M., Kubler, J. J., Lagulay, J., Lakim, N., Lanoy, L. G., Laurente, L. J., Lebanan, L. M., Lim, N. K., Limen, C. J., Loyola, D. C., Mabalot, M. J., and Mabaning, R.

COLLEGE OF MEDICINE | 2020

Lemon Balm (*Melissa officinalis* L.) of the family Lamiaceae, has been traditionally utilized as a medicinal plant for various illnesses, which could be attributed to its various pharmacologic activities such as antioxidant, antimicrobial, anticancer, anti-inflammatory and antiviral. This literature review investigates the potential HIV-1 inhibitory activity of Lemon Balm (*Melissa officinalis* L.) leaf extracts and may potentially answer inquiries into its activities. Results from various studies have shown that Lemon Balm leaf extracts are able to inhibit HIV-1 in differing mechanisms, such as by increasing the virion density, inhibiting the HIV-1 protease, as well as inhibiting the HIV-1 reverse transcriptase. The compounds present in Lemon Balm leaf extracts attributable to these activities however, are predominantly unknown. Thus, additional studies must be done to further understand its ability to inhibit HIV-1 and its potential clinical applications.

Keywords: *lemon balm, potential anti-HIV-1 properties, literature review*

Literature Review on the Cardioprotective Effect of *Allium Cepa* L. (Onion)

Guerrero, C. T. Y., Gumban, L. F. P., Himagan, J-M. E., Ibrahim, H. A., Ilagan, J. M. D., Imbo, B. J. R., Jabel, J. A., Javellana, C. A. L., Jocson, K. A., Johnston, S. G. P., Julkipli, M. A. M., Kusin, P. N. N., Ledda, I. M. V., Legaspi, J.

COLLEGE OF MEDICINE | 2020

Onions (*Allium cepa*) is one of the most important vegetables around the world. Although mainly used as a food item and as a cooking ingredient, onions have also long been used for its therapeutic properties such as antibacterial, antiviral, antioxidant, hypolipidemic, antihypertensive, anticancer, and antidiabetic. To obtain a better understanding of onions and their cardioprotective effects, the researchers conducted a literature review to investigate the mechanisms and functional components responsible for the aforementioned effect of onions. Comprehensive English literature search was conducted using various electronic search databases such as PubMed and ScienceDirect. Onions have shown cardioprotective properties in vitro, in vivo and in clinical trials. Studies also show that onions are rich in organosulfur compounds, quercetin, flavonoids, saponins, and others, which are some of the functional components playing a key role in mediating diseases. The results of this review support the cardioprotective effect of onions and that this study may be used as a basis for the development of functional food, nutraceuticals, and alternative drugs to improve cardiovascular health.

Keywords: *Allium cepa*, cardioprotective, antioxidant, flavonoids, quercetin

Narrative Review on the Antiviral Potential of *Melissa officinalis* L. (Lemon Balm)

Abangon, A. U., Achurra, A. J., Aguirre, D. I. C. G., Agor, S. D. E., Alag, M. M. K., Alaza, G. M. B., Alcober, C. L. S., Alo, D. R. D., Amelda, P. E. H., Amacna, V. B. D., Ammong, B. B. I., Ampatuan, B. K. S., and Angeles, P. A. G.

COLLEGE OF MEDICINE | 2020

Lemon Balm (*Melissa officinalis* L.) has long been used as herbal medicine due to its wide pharmacological effects: antibacterial, antifungal, antioxidant, antithyroid, sedative, and lastly, an antiviral action. The purpose of this research is to investigate the antiviral mechanism and antiviral properties of lemon balm oil extract using steam distillation. Gathered research studies have shown the active chemical component that elicits an antiviral activity which targets viral life cycle and affects different stages of viral replication. This study presents informations regarding the antiviral effect of lemon balm and its potential uses. However, additional studies must be made to establish causal relationships; further develop and deepen the understanding of its antiviral property; and identify the specificity of viral causation targeted by the active components seen in lemon balm.

Keywords: *lemon balm, potential anti-HIV-1 properties, literature review*

Antibacterial Activity of Mangkono (*Xanthostemon verdugonianus*) Ethanolic Leaf Extract

Balante, N. D., Amban, M. C., Abandula, H. C. M., Abasolo, J. I. S., Adalin, F. R. B., Albano, R. J. B., Amil, I. O., Angos, L. P. M. C., Arafol, G. S. II., Arroza, J. C. D., Austre, R. J. R. S., Baluca, M. D. A., Banaga, Q. R. A. D., and Barroquillo, S. C.

COLLEGE OF MEDICINE | 2020

Antibiotic or antimicrobial resistance (AMR) is a growing problem in developing and developed countries around the world. Research has shown AMR incidence in half a million people with suspected bacterial infections across 22 countries and is accepted to continue to rise. Present also in humans are biofilms, which are also antibiotic-resistant in nature. Evidence points to the high tolerance of antibiotics in microbial infections due to biofilm formation. This study aimed to determine the antibacterial activity of Mangkono (*Xanthostemon verdugonianus*) ethanolic leaf extract against disease-causing bacteria on patients who are immunocompromised or otherwise. Based on a review of the literature on antibacterial properties of plants and antimicrobial testing, experimentation was done, such as the ethanolic type of extraction of Mangkono leaves. Phytochemical analysis of the Mangkono ethanolic leaf extract was done. Minimum inhibitory concentration and Disc diffusion assay tests were carried out with strains of *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa* as test organisms. Brine shrimp lethality assay was also done to test for the toxicity of the ethanolic leaf extract. Analysis of the test results revealed several phytochemical components of the ethanolic leaf extract were associated with antibacterial properties. The brine shrimp lethality assay result revealed that the ethanolic leaf extract was toxic. However, this simple screening test is inaccurate due to multiple factors, one being the solvent used for the extract. The results indicated that Mangkono ethanolic leaf extract does have antibacterial properties. Further research on the Mangkono ethanolic leaf extract is recommended by the researchers to refine and single out the phytochemical component that carries the antibacterial property. As the leaf was utilized in this study, other parts of the plant, like that of its flowers, roots, and bark, may possess different properties and also be used.

Keywords: *Mangkono, antibacterial, leaf extract, literature review*

Review on the Antimicrobial Potential of Crown of Thorns Starfish (*Acanthaster planci*) Extracts

Pel, P. G. A., Piang, R. A. B., Pontillas, P. D., Pantorilla, M. S., Paz, R. A. S., Pepito, S. L. F., Piatos, T. A. P., Plasabas, M. G., Polingga, C. B. R., Porticos, P. F. E., Questo, I. A. R., Ramos, C. L. D., and Remillate, D. G.

COLLEGE OF MEDICINE | 2020

Microbial infections are the most common cause of diseases in humans, proving the importance of antimicrobials. However, due to increasing cases of antimicrobial resistance, finding new sources is very much needed. Saponins are recognized to have a diverse range of biological activities with therapeutic potential, and antimicrobial are among those. *Acanthaster planci*, which causes significant destruction of coral reefs globally, are found to contain such compounds: saponins and PLA 2 being the most studied. This study aimed to review the antimicrobial properties of these extracts from *A. planci*. Studies found out that many saponins have already been extracted and characterized, such as thornasteroside A and B, and acanthaglycosides A-G. However among these, only cytotoxic properties have been demonstrated with a lot of unknown properties. Another compound isolated from *A. planci* is phospholipase A2 which demonstrated antibacterial activity against *Staphylococcus aureus* and antiviral activity against HIV. Methanolic crude extract also showed antibacterial activity against *Micrococcus sp.* The findings of this review showed a huge gap in knowledge to be filled in terms of therapeutic potential of *A. planci* extracts. Its antimicrobial activity also needs to be explored against a wide range of microorganisms, particularly those which are pathogenic to humans.

Keywords: *Acanthaster planci*, saponin, phospholipase A2, antimicrobial

In Vitro Cytotoxic Potential of Abaca (*Musa textilis*) Ethanolic Leaf Extract

Villacorta, J. A., Villaneza, M. K., Villaruel, Y. G., Villegas, H., Visande, H., Wee, A. M., Yap, S. M., Yata, L. A., Ycong, J. F., Yoshida, H., Yumang, J., Yurango, M. A., and Zacaria, A-J.

COLLEGE OF MEDICINE | 2020

Due to the continuing problem regarding affordability, accessibility and efficacy of chemotherapeutic drugs in the Philippines, there is a need to look for other options for the economical treatment of cancer. Endemic plants from the Philippines under the genus *Musa* have been reported to have potential cytotoxic activity that may be used for developing affordable novel antineoplastic drugs. Phytochemical and FTIR analyses were employed to characterize the compounds present in Abaca (*Musa textilis*) leaf extract; phenol was the major compound in the extract. Three fractions, namely ethyl acetate, hexane and aqueous residual fractions were subjected to the MTT assay. Ethyl acetate fraction at 100 ug/mL exhibited the most cytotoxic activity with a percent viability of 13.24 ± 0.11 . Ethyl acetate fraction (60.94 ug/mL) had the lowest IC₅₀ and therefore has the most effective in vitro cytotoxic potential. Results showed insignificant difference between the IC₅₀ of the different *M. textilis* fractions and the positive control. The IC₅₀ of each fraction has failed to reach the recommended criteria of the National Cancer Institute (IC₅₀ of 30 ug/dL) for plant extracts that can be used as novel cytotoxic drugs. Thus, *M. textilis* ethanolic leaf extract does not possess sufficient cytotoxic activity to be used as a novel cytotoxic drug against lung cancer.

Keywords: *Abaca*, *Anticancer*, *Cytotoxic*, *Musa textilis*, *MTT Assay*

In Vitro Cytotoxicity of Magkono (*Xanthostemon verdugonianus*) Leaf Extract: A Literature Review

Escueta, D. R. B., Espanto, R. J. E., Facturan, R. E., Ferenel, C. L. S., Fernandez, R. F. D., Fortolazao, H. C. B., Galido, M. S. G., Gaña, A. S., Geguinto, J. M. V., Gelaver, K. L. P. R., Godinez, N. R. P., Gomez, J. A. D., Gonzales, P. R. G., and Guerra, E. M. A.

COLLEGE OF MEDICINE | 2020

Mangkono (*Xanthostemon verdugonianus*) is an indigenous tree to the Philippines and is categorized as an endangered species. Although the data about its medicinal uses and cytotoxicity is very limited, a phytochemical study on Mangkono revealed the presence of active constituents such as phenols, tannins, saponins and flavonoids. Some of the compounds present have been known to pose potential health risks to humans. This literature review included extensive research of Mangkono and its properties. In order to establish new pharmacological possibilities for Mangkono application, more information is needed about its effects on viable cells. Thus, in vitro cytotoxicity assays are significant stepping stones in the future application of Mangkono in the clinical setting.

Keywords: *Mangkono, cytotoxicity, in vitro, literature review*

A Narrative Review of the Potential Anti-Inflammatory Properties of Mangkono (*Xanthostemon verdugonianus*) Aqueous Leaf Extract

Gesim, J. M., Go, M. A., Go, C. B., Grageda, R. M., Hadja, G-K., Hadjala, F. R., Hassan, F. A., HHontiveros, D., Icalina, M. A., Ines, L. N., Iturralde, R., Jala, P., Jalandoni, I. G., and Joyno, A. C.

COLLEGE OF MEDICINE | 2020

Mangkono (*Xanthostemon verdugonianus*) is currently classified as an endangered tree from the Myrtaceae family that is endemic to the Philippine setting and is currently undergoing repopulation efforts. This literature review was performed to elucidate the positive phytochemical properties of the said plant and gain more insight regarding its possible medical application. The Myrtaceae family in general has been the source of traditional medicine with uses ranging from being an antioxidant to its ability to soothe inflammation. In testing for the phytochemical properties, the leaves of the Mangkono were utilized in order to gain an extract that was later used in the phytochemical testing. Positive results revealed the presence of metabolites such as flavonoids, saponins and tannins; all of which are components generally shared by the Myrtaceae family. These metabolites produced positive inhibitory activity against cellular mechanisms necessary to produce an inflammatory response, further prompting future research to determine its benefits in the development of new anti-inflammatory drugs. Most of the positive metabolites have shown activity against the synthesis of eicosanoids and inhibition of the cyclooxygenase pathway as well as other metabolites of inflammation. This study delves on the potential of these metabolites and their mechanism of actions in the pathogenesis of inflammation.

Keywords: *Inflammation, Mangkono, Metabolites, Phytochemical analysis*

***Usnea philippina* Wainio Extract as Potential Interleukin-6 Inhibitor: An In Vitro Study**

Sialana, R. L., M., Sorinio, C. D., Suelto, L. J., Sueno, A., Tagalog, M. T. J., Taki, A. J. M., Te, S. J., Tecuala, C. A., Tinagan, D. A., Trinidad, J. M., Toledo, M. L., Tono, H. I., and Tumagantang, N.

COLLEGE OF MEDICINE | 2020

The *Usnea sp.* is a lichen that has exhibited numerous medical benefits linked to usnic acid, a derivative unique to it. *Usnea philippina* Wainio specifically has not been studied broadly. Plant characterization using phytochemical screening, Reversed Phase-High Performance Liquid Chromatography (HPLC), and Fournier-transform infrared spectroscopy (FTIR) were done to identify functional groups and derivatives and it identified the presence of tannins, polysaccharides, fatty acids, depsides, depsidones, terpenes, terpenoids, sterols, benzofurans and phenolic compounds. Usnic acid was not detected. The plant ethanolic extract was tested for interleukin-6 inhibitory activity at concentrations of 50, 100, 150, and 200 ug/mL at different IL-6 concentrations of 400, 160, 64, 25.6, 10.24, and 0 pg/mL. Inhibitory activity was analyzed using a microplate reader at 450/500 nm. Analysis revealed a significant interaction between IL-6 and treatment. There was a significant difference in the mean IL-6 percent inhibition across varying IL-6 concentrations and as well as significant difference in the measured IL-6 percent inhibition across varying treatment. Statistical analysis did not yield a significant difference between the IL-6 percent inhibition across varying concentrations of *Usnea philippina* Wainio extract treatment implying that the IL-6 activity is inhibited by all treatment concentrations. It was also observed that there is a significant difference in the IL-6 percent inhibition measured in wells without IL-6, specifically between the 100 ug/mL and 50 ug/mL *Usnea philippina* Wainio extract treatments. The inhibitory activity can be attributed to the presence of tannins and polysaccharides detected in the extract. This provides a premise for the use of *Usnea philippina* Wainio as an interleukin-6 inhibitor.

Keywords: *Usnea philippina* Wainio, Interleukin-6 Inhibitor, In Vitro Study

Anti-Inflammatory Activity of *Graphis* (*Scolaecospora*) *mindanaoensis*: A Literature Review

Mosqueda, S. R., Naranjo, N., Narciso, L. M., Niog, M. J., Nor, J., Oliva, P., Pabayo, R. A., Pader, R. N., Padua, M. L., Panayaman, C. M., and Panceras, W. II

COLLEGE OF MEDICINE | 2020

Inflammation is the body's protective mechanism against injurious substances. While it has its favorable effects, it could also bring harm upon its host when left uncontrolled. With this biological response being a double-edged sword, people have sought to dampen the unfavorable effects brought about by inflammation by using different drugs and traditional medicine. Lichens are organisms which are obscure but have already been utilized in folk medicine to treat different ailments. Different lichen species exhibit different pharmacological effects due to the biological actions of their specific secondary metabolites. A species of lichen called *Graphis mindanaoensis* could possibly have anti-inflammatory properties due to the different studies on other species belonging to its family: Graphidaceae. Studies have shown that the extracts and chemical constituents of some species of the Graphidaceae family have notable anti-inflammatory profiles. This paper focused on the potential anti-inflammatory effects of another species belonging to Graphidaceae, the *Graphis mindanaoensis*, a lichen endemic in Mindanao.

Keywords: *Graphis mindanaoensis*, potential anti-inflammatory, literature review

Phytochemical Analysis, Functional Group Identification, and Structure Elucidation of Mangkono (*Xanthostemon verdugonianus*)

Basa, E. M., Bautista, R., Binarao, K., Biruar, A. S., Blanco, J. D., Cadir, J., Cadorna, M. J., Cahulogan, Z. L., Calague, M., Calimbas, M. T., Canta, M. D., Coraje, R. O., and Cosina, P. L.

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The review aimed to explore the properties of the genus *Xanthostemon* and the plant of interest, *Xanthostemon verdugonianus*, which is listed as a vulnerable species and is monitored closely due to threats to its population which has drastically declined. The problem statement also relied on understanding the role of phytochemical analysis, functional group identification, and structure elucidation in medical research. Findings indicated that sesquiterpenes dominate the phytochemical nature of species under the genus *Xanthostemon* and that sesquiterpenes have shown various pharmacological efficacy, such as its antibacterial, anti-inflammatory, and antitumor properties. Furthermore, High Performance Liquid Chromatography, Thin Layer Chromatography, Fourier Transformed Infrared Spectroscopy, and Gas Chromatography/Mass Spectrometry are among the most common techniques used to aid in identifying the said properties.

Keywords: *phytochemicals, functional group, chemical structure, vulnerable species, sesquiterpenes*

***Cinnamomum mercadoi* (Kalingag)**

Geographical Distribution, Uses, and Medicinal Properties

Cueno, A. K. O., Cuta, R. E., Dagondon, V. O. J., Dalumbar, R. R. T., Dayao, R. I. A., De Leon, L. O., De Nuevo, F. J. B., Deduyo, R. M. V., Dela Cruz, H. C. B., Delos Santos, J. A. M., Diranggaren, M. Z. D., Dizor, C. N. B., and Elorza, J. G. D.

COLLEGE OF MEDICINE | 2020

Cinnamomum mercadoi, or known locally as Kalingag, Kariñag, or Kalingak, is an endemic species found in the Philippines. It is part of the Lauraceae family comprising 30 to 50 genera and about 2,000 species of woody trees and shrubs. It is one of the oldest herbal medicines as dated back 4000 years ago in medicinal texts in China. Recent studies of this plant have shown curative abilities in which the extracts and essential oils were screened and showed positive activity. Its bark is used for its antidiarrheal, antioxidant, and anti-inflammatory properties and the leaves for its antioxidant, analgesic, and expectorant effects. The content of the leaf extract was mainly cinnamic aldehyde while its bark extract consisted of methyl eugenol, safrole and eugenol. Along with these benefits, *C. mercadoi* also helps in digestion and for stomach trouble, headaches, wound infection, cough, diabetes and hypertension rheumatism, and urinary tract infection. Aside from its remedial advantages, the bark may also be used as a condiment and cinnamon substitute.

Keywords: *Cinnamomum mercadoi*, herbal medicine, drug development

In Vitro Cyclooxygenase Inhibitory Activity of *Cinnamomum mercadoi* S. Vidal Crude Ethanolic Extract

Macatumbas, E. L. G., Maongco, S-A. M., Mohamad, P. S. S., Malbog, K. M. A., Megriño, N. K. L., Melendez, W. J. C., Mondejar, M. L. C., Mamat, A. M. L., Magbanua, S. G., Macapaz, R. R. R., Mission, K. J. L., Majuk, A-M. H., Magaling, J. Q., and Mala, Y. A.

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Pain has been the most common symptom from globally, if left untreated, may result to a series of harmful health effects that may reduce the ability of the person's immune system to fight off diseases. The Cyclooxygenase (COX) Pathway are responsible for the accompanying symptom of pain in inflammatory diseases. Medications have already been developed to address and relieve the symptom. These medications include Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) that functions to inhibit the COX pathway relieving pain, but are contraindicated for some patients with severe hepatic and renal dysfunction due to its composition of a group of diverse drugs that are metabolized and excreted in the liver and kidneys, respectively. *Cinammomum mercadoi* S. Vidal is an endemic plant in the Philippines, particularly in Butuan City and Surigao del Sur and is of interest in the inhibition of COX. This study explores on the benefits of *Cinammomum mercadoi* S. Vidal plant, and aims to provide a scientific basis for its potential to inhibit the Cyclooxygenase activity through its ethanol crude extract and undergo Phytochemical tests and Cyclooxygenase (COX) Inhibitory Activity Assay. Phytochemical tests showed the presence of Tannins, Flavonoids, Saponins, and Terpenoids. Previous studies have shown the anti-inflammatory, analgesic, and COX inhibitory activity of each of these components.

Keywords: *Cinammomum mercadoi*, *Cyclooxygenase Inhibitory Activity*, *Phytochemical test*

Phytochemical Properties of the White Variety of Sibujing (*Allium ampeloprasum* L.) Bulb Extract

Añides, J., Antesa, Y. M., Apas, R., Aristosa, R. J., Asistido, J., Asmad, R., Astudillo, I. C., Autida, P., Ating, A., Bajao, H. M., Balcita, X. C., Bangayan, C. P., and Barnizo, K. M.

COLLEGE OF MEDICINE | 2019

Identification of phytochemical contents provides useful information about the qualitative and quantitative data about a plant's composition. Varieties of *Allium* species are used for the treatment and prevention of many diseases. The study aimed to determine the phytochemical properties of the white variety of Sibujing (*Allium ampeloprasum* L.) bulb extract through phytochemical screening, FTIR (Fourier Transform Infrared Spectroscopy) and GC-MS (Gas Chromatography Mass Spectrometry) analyses. The results of phytochemical screening of the crude extract determined the presence of flavonoids and saponins, which have antibacterial and anti-inflammatory properties. The FTIR and GCMS analyses revealed phytochemical profiles exhibiting a wide array of compounds. The results of FTIR analysis of the crude extract and fractions have identified the presence of functional groups such as, alkenes, alkanes, amines, carboxylic, and alkyl halides. The GC-MS analysis results have identified a variety of bioactive compounds isolated from different fractions. There were 41 compounds isolated from the hexane fraction where 9-Octadecenamide, which has a cosmetic property, had the highest concentration. Thirteen compounds were isolated from the ethyl acetate fraction where Hexadane/N-cetane, which has an antimicrobial property, had the highest concentration. Twelve compounds were isolated from the acetone fraction where 4H-Pyran-4-one, 2,3-Dihydro-3,5-Dihydroxy-6-Methyl, which has an antioxidant property, had the highest concentration. Thus, this study supports that *Allium ampeloprasum* L. exhibits multiple biological properties that may be explored for the discovery of potential uses of the plant.

Keywords: *Allium ampeloprasum*, phytochemical properties, FTIR, GCMS

Effects of Insulin Plant *Costus igneus*) Leaves on Glycosylated Hemoglobin and Fasting Blood Sugar Levels of Adult Diabetic Volunteers: A Retrospective Study

Agor, S. D., Amsali, F. S., Angos, L. P. M., Autida, P., Bernales, W. K., Cadir, J., Del Rosario, F., Escueta, D. R., Gallardo, V. J., Llido, J. C., Majuk, A-M., Mokamad, A. A., Orpeza, V. J., Ortuoste, E., Pontillo, M., Pulmones, J. J., Serrano, R., Tan, Y. L., Tumagatang, N., Valdez, P. B., and Wee, A. M.

COLLEGE OF MEDICINE | 2019

Insulin Plant (*Costus igneus*) leaves, albeit not widely used in food preparations, have been utilized by people in Asian countries as a supplement in management of Diabetes Mellitus. This supposed hypoglycemic activity of the insulin plant may be attributed to Quercetin, a bioactive compound found in the Insulin plant, as claimed by various study. To further examine the efficacy of the Insulin plant on blood glucose levels, 25 adult volunteers who were diagnosed with Diabetes Mellitus Type II and were consuming Insulin plant leaves were interviewed via questionnaire tool and tested of their blood glucose level via glycosylated hemoglobin (HbA1c) and fasting blood sugar (FBS). The volunteers were then grouped according to the number of insulin plant leaves they consume per week, which are less than seven leaves, equal to seven leaves, and greater than seven leaves. They were also grouped according to the duration of their consumption, which are less than or equal to three months, and greater than three months. Comparisons were made of the HbA1c and FBS levels of the volunteers in accordance to the number of insulin plant leaves consumed and the duration of insulin plant leaf intake. The volunteers who consumed greater than seven leaves per week and those who consumed for more than three months showed the greatest reduction in blood glucose levels. Thus, this study concluded that increased number of insulin plant leaf consumed and prolonged duration of intake results in a decrease in both fasting blood sugar and glycosylated hemoglobin levels.

Keywords: *Insulin Plant, Diabetes Mellitus, fasting blood sugar, Retrospective study, adult diabetic*

Profiling of Prostate-Related Disease Among Public Utility Jeepney (PUJ) Drivers in Davao City

Abrina, J., Ali, N. H., Asuncion, A. J., Ating, A., Bautista, R., Bernan, P. S. M., Buranday, B. J., Corpuz, W. B., Dumagpi, R-G., Grageda, R. M., Maceda, G. S., Menci-dor, M. A., Mohamad, P. S., Mosqueda, S. R., Narciso, L. M., Sinajon, K. M., Tac-an, R., Tono, H. I., Villaneza, M. K., and Yurango, M. A.

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Prostate related disease has recently shown alarming incidence and prevalence rates. This study was conducted to determine the profile of prostatic diseases among PUJ Drivers in Davao City. Fifty male respondents were included in the study with ages ranging from 40 to 60 years old without co-morbidity. Transabdominal Ultrasonography (TAUSP) of the Prostate was conducted, International Prostate Symptom Score (IPSS) and serum Prostate Specific Antigen (PSA) levels were taken. Results showed that 20 out of 50 respondents showed positive in TAUSP. Of these, 15 had moderate and five severe prostate symptoms. A clinically significant trend is seen in the IPSS and TAUSP as seen in the results of frequency count and percentage; that those who showed abnormal TAUSP have an IPSS that is moderate to severe, while those who showed normal TAUSP have an IPSS that is mild to moderate. Therefore, the PUJ drivers with an abnormal TAUSP of Grade I and Grade II experiencing moderate to severe prostate symptoms have Benign Prostatic Hyperplasia (BPH).

Keywords: *Benign prostatic hyperplasia, Public Utility Jeepney drivers, IPSS, PSA, TAUSP*

Effects of Lemon Scent on the Working Memory of First year NMD Students in DMSF A.Y. 2018 to 2019

Cosina, P. L. C., Alag, M. M. K., Astudillo, I. C. S., Angeles, J. P. K., Binarao, K. N., Deduyo, R. M. V., Dimaano, L., Enriquez, V. P., Gaña, A. S., Himagan, J. M. E., Julkipli, M. M., Manebpel, A. S., Pua, C. G., Soria, M. J. C., Tecuala, C. A. D., and Yap, E. L. M. N.

COLLEGE OF MEDICINE | 2019

Effective memory plays a key role in achieving higher grades which leads to good academic standing, that is why several studies were conducted that greatly affects the human memory. Such extraordinary study is the effect of lemon scent on the working memory. This has determined the working memory score of first year NMD students in DMSF A.Y. 2018 to 2019 exposed to lemon scent according to the Stanford-Binet Intelligence Test. This study employed a quasi-experimental research design. A questionnaire was used to ask the 1st year NMD students from sections A, B and C for their demographic profile (age, sex, educational background and NMAT percentile). Their willingness to participate along with their olfactory health status was also determined. Thirty first year NMD students were the subjects of the study. Stanford-Binet Intelligence Test was used as an assessment tool conducted by the psychometrician. A pre and post-test was done by both the experimental and control group with the experimental group exposed to lemon scent for 2 weeks prior to post test. Results showed that the working memory scores of the participants exposed and not exposed to lemon scent showed no significant difference. However, the experimental group showed a significant difference between their pre and post-test on the verbal, non-verbal, total scaled score and standard score due to the anticholinesterase activity of the camphor and 1,8-cineole of the lemon essential oil. Due to this mechanism, prolonged depolarization encodes information from short term into long term memory. A randomized clinical trial design as well as homogeneity of the participants is recommended to have a better testing process and analysis.

Keywords: *Lemon Scent, working memory, quasi-experimental Design, Standard-Binet Intelligence Test*

Effects on Squash (*Cucurbita spp.*) on Fasting Blood Glucose Among Prediabetic Adult Volunteers in Davao City

Amelda, P. E. H., Bacala, P. B. A., Barrios, R. M. C., Dayao, I. R. A., Fernandez, R. F. D., Gonzales, P. R. G., Hadjala, F. R. S., Iturralde, R. U., Jabel, J. A., Ledda, I. M. V. C., Maongco, S. A. M., Niog, M. J. S., Palabyab, C. D. M., Pasaje, P. L. D., Questo, I. A. R., Sam, A. M. L., Soria, G. P., Tinagan, D. A. V., and Valencia, E. K.

COLLEGE OF MEDICINE | 2019

Diabetes is one of the leading cause of deaths in the Philippines and pre-diabetes is one of the most common causes that lead to Type II Diabetes Mellitus among Filipinos. Squash (*Cucurbita* family) is a commonly cultivated crop in the country that is present throughout the year and is found to contain quercetin and protein-bound polysaccharides which contribute to a hypoglycemic effect of the plant. The objective of this study was to determine the effects of a squash juice extract on the fasting blood glucose of selected pre-diabetic adults in Davao City. The plant material was collected, processed, and placed into bottles at 4 mL/kg for ready consumption. The 30 participants daily took the juice and their fasting blood glucose levels were taken at days 0, 7, and 14. The results showed that there is a marked decrease of the fasting blood glucose among the experimental group with mean values from 6.16 (Day 0) to 5.32 (Day 14). However, upon statistical analysis of the ITT and PP population, the decrease in the FBG for the duration of the study was determined to be not significant.

Keywords: *squash juice, diabetes, fasting blood glucose*

Potential Lipid-Lowering Effect of Calamansi (*Citrofortunella microcarpa* L.) Fruit Among Low-Risk Hyperlipidemia Adult Volunteers of Matina Aplaya, Davao City: A Pilot Study

Baluca, M. D., Bernabe, E. J. C., Cahulogan, Z. L. I., Carcosia, J. K. T., Cortez, R. J. P., Edding, M. B., Geguinto, J. M. V., Hassan, F. A. J., Kusin, P. N. N., Lagon, N. K. D., Lorenzo, P. T. R., Malbog, K. M. A., Mondragon, A. R., Nor, S. J. U., Pabustan, S. J. B., Piatos, T. A., Sialana, M. R. S., Tagalog, M. T. J. D., and Uy, A. P.

COLLEGE OF MEDICINE | 2019

Calamansi (*Citrofortunella microcarpa* L.) fruit, a widely cultivated and accessible plant in the Philippines, has high polymethoxylated flavonoid content, which has been proven to effectively lower the LDL concentration in the blood. Lowering the serum lipid profile specially, LDL can prevent the risk of acquiring coronary heart disease which is one of the leading causes of death globally. Utilizing a quasi-experimental research design, the study aimed to test the extent of the lipid-lowering effect of the Calamansi fruit comparing the lipid profile of the respondents measured before the intervention (Day 0) and after the intervention (Day 6). High performance Liquid Chromatography (HPLC) was used to verify the quality of flavonoids in the prepared powder against a quercetin standard and result showed a peak in the Calamansi. Also, colorimetric assay was used resulting to an estimated 1786 ppm concentration of flavonoids. Among seven (7) low-risk hyperlipidemic participants, results showed a significant difference in LDL and cholesterol levels from baseline 135.8 mg/dL to 116.2 mg/dL for LDL and 212.7 mg/dL to 126.6 mg/dL for cholesterol. Total triglycerides showed a insignificant increase while HDL showed a insignificant decrease. With these results, the study showed that Calamansi fruit has no significant effect on the lipid profile of low risk hyperlipidemic individuals. This can be ascertained based on the significant difference between the baseline and post-intervention lipid profile values of the research participants.

Keywords: *Lipid lowering effect, calamansi, LDL, HDL, HPLC*

Pulmonary Function of Public Market Retailers Chronically Exposed to Fruit Ripening Agent (*Calcium carbide*) in Davao City

Amil, I. O., Arafol, G. II S., Bajao, H., Barroquillo, S. C., Buniel, R. V. S., Canda, J. T. B., Coching, K. T. D., De Leon, L. O., Firmacion, A. D. S., Gotera, C. L. M., Jala, P. A., Lipaygo, M. J., Megriño, N. K. L., Ocon, K. R. P., Ordaneza, I. M., Pel, P. G. A., Pepito, S. L. F., Quico, K. F., Remillite, D. G., Sebumpan, J. M. B., Stephenson, T. J. P. and Veroy, K. M. P.

COLLEGE OF MEDICINE | 2019

The study determined the effect of chronic calcium carbide exposure to the pulmonary function of public market retailers using a retrospective cohort study design. Inclusion and exclusion criteria were utilized to screen the subjects using a questionnaire, physical examination, and chest X-ray. Fifteen chronically exposed and fifteen unexposed public market retailers who passed the preliminary screening, comparable in terms of age, height, weight, sex, and have negative chest x-ray were subjected to pulmonary function test using a spirometer, comparing the mean FEV₁, FVC & FEV₁/FVC ratio. Reduced FVC suggests restrictive ventilatory impairment; two had moderate restrictive ventilatory impairment. Of the exposed subjects, 53.33% showed abnormal PFT results: four had mild restrictive ventilatory impairment; two had moderate restrictive ventilatory impairment; two had moderate severe restrictive ventilatory impairment; while seven had normal results. On the other hand, pulmonary function test results of the unexposed group showed normal for all 15 subjects. PFT interpretation between the two groups was determined to be significant. Hence, the study concluded that chronic calcium carbide exposure has a significant effect on the pulmonary function of public market retailers.

Keywords: *Artificial Ripening, Calcium carbide, Pulmonary function test, Spirometry*

Ergonomics Training on Musculoskeletal Injury Risk Scores among Construction Workers in Diamond Heights Subdivision, Communal, Buhangin, Davao City

Abasolo, J. I., Aguirre, D. I. C., Aquino, D. M., Bangayan, C. P., Biruar, A. S., Calague, M., De Celis, S., Delos Santos, J. A., Espino, Y. A., Garcia, A. M., Icalina, M. A., Kubler, J., Lu, R. K., Mondejar, M. L., Pagdilao, A. J., Pantig, T., Realubit, A. K., Sexcion, J. A., Tenorio, J. R., Valdez, E. J., Velasco, J. A., and Yap, S. M.

COLLEGE OF MEDICINE | 2019

The construction industry is one of the largest and most hazardous industries in the world, exposing workers to dangerous environments and are at a high risk for Musculoskeletal disorders. Several studies have been conducted regarding the risk assessment for musculoskeletal injury varying in the ergonomic tools used, risk factors studied, and the type of intervention applied. The study aimed to determine the effect of ergonomics training on the Musculoskeletal Injury Risk Scores using Rapid Entire Body Assessment (REBA) tool among the construction workers in a local construction company in Davao City. Respondents ($n = 40$) had their demographic data collected particularly age, educational attainment and number of years in construction work. A pre and post-test after ergonomic training was conducted. The Rapid Entire Body Assessment (REBA) was used to gauge the respondents' risk for Musculoskeletal injury (MSI). The results displayed the pre-test REBA scores have a moderate negative correlation to age, a weak negative correlation to educational attainment, and no correlation to the number of years in construction work. Also, there is a significant difference between the pre and post-test REBA scores after intervention. Results of the study suggest that the administration of ergonomic training proved to be beneficial in reducing the Musculoskeletal injury risk of construction workers.

Keywords: *construction workers, musculoskeletal disorders, REBA scores, pre and post test*

Effects of Red Tomatoes (*Lycopersicon esculentum* Mill.) on Mean Arterial Pressure (MAP) Among Prehypertensive Adult Volunteers in Davao City

Te, S. J. F., Villaruel, Y. G. S., Rocero, R. M. B., Sarmiento, K. B., Ammong, B. B. I., Gaga-a, K. B. M., Magbanua, K. N. D., Dela Cruz, H. C. B., Yumang, J. L. R. S., Liberato, J. C. A., Pableo, L. T. L., Plaza, D. J. M., Arabelo, S. D. M., Johnston, S. G. F., Amante, S. J. B., Doromal, N. A. K. A., Basa, E. M R., Cadorna, M. J. E., Umbaña, C. R. A. P., and Guaza, M. C. P.

COLLEGE OF MEDICINE | 2019

Hypertension is the single most attributable cause for mortality in Southeast Asia, and is considered to be the leading illness and a precipitating factor of premature death in the Philippines. Tomato (*Lycopersicon esculentum* Mill.) is a common ingredient to numerous dishes and is also processed into condiments and seasonings. The objective of this study is to determine the effects of red tomatoes on the mean arterial pressure (MAP) of the prehypertensive adults in Davao City. The respondents were screened through an inclusion-exclusion criteria. Afterwards, they were equally assigned through block randomization to either experimental (tomato juice) or control (comparator) group. The data collected for the 44 respondents was conducted in Purok 1B, Barangay 19-B, Poblacion District, Davao City. This study utilized the randomized control group post-test only research design. The experimental group were given tomato juice which was prepared by blending 150 g of tomato mixed with 30 mL water and 10 g dietary sugar. On the other hand, the control group received the comparator which is powdered apple juice. The blood pressure levels for both groups were taken, monitored and recorded daily for a period of two weeks. After two weeks, the gathered data were statistically analyzed. As to the demographic profile of the respondents, their mean age was 31 ± 6.255 years old, mean BMI was 22.55 ± 2.984 (Normal), and the distribution of male and female respondents were 21 (48%) and 23 (52%), respectively, indicating approximate balance in the distribution of sexes. Results showed that there was a significant difference on the Mean Arterial Pressure (MAP) of the experimental group (tomato juice) compared to the control group. This implied that tomato juice was an effective prophylaxis for hypertension. Recommendations of the researchers for further studies include utilization of the dosage strength based on lycopene's minimum effective concentration and use on other medical conditions such as hypercholesterolemia.

Keywords: Mean arterial pressure, hypertension, tomato juice

Prevalence and Severity of Anemia Among Indian Medical Students in Davao Medical School Foundation

Amacna, V. B. D., Antesa, Y. M. A., Balcita, X. C. P., Braganza, Z. Y. S., Catlico, K. F. C., Dato-on, V. P. B., Dodong, S. T., Ferenal, C. L. S., Gomez, J. A. D., Ines, L. N. A., Legaspi, J. S., Mala, Y. A., Mejias, O. J., Pabayo, R. A. R., Plasbas, M. G., Rabaya, P. J., Sarad, C. E., Tan, M. A. A., Ycong, J-F B.

COLLEGE OF MEDICINE | 2019

Anemia is a prevalent health problem worldwide and it affects the total health status of an individual. Davao Medical School Foundation has significant number of international medical students brought to the clinic due to the condition of anemia. Hence, this cross-sectional study was conducted to identify the prevalence of anemia among Indian International medical students and to further classify the severity of their anemia according to the World Health Organization classification based on hemoglobin levels. Among the 3,936 total populations of Indian enrolled in Davao Medical School Foundation, stratified random sampling was used to identify a total of 386 respondents stratified per year level. Among the total respondents, 205 were female, while 181 were males. Three hundred forty-two of the respondents were 18 to 22 years old. Most of the respondents hail from Tamil Nadu, followed by Maharashtra, Telangana, Andra Pradesh, and the rest of the stat of India. The results of the study showed that 29% of the respondents were anemic which is a moderate public health concern. This prevalence was classified to 16% with mild anemia, 12% with moderate anemia and 1% of the respondents were severely anemic. Based on the results, most of the respondents identified with anemia were female with 72 cases reported; first-year level having 43 anemic respondents; 109 anemic respondents were coming from 18 to 22 years old age bracket and 46 anemic respondents from the state of Tamil Nadu. Results showed only the severity of anemia and age have shown to be related, while sex, hometown and year level showed no relationship. These findings suggested that additional study is necessary to identify the causative factors of this notable prevalence and to increase further programs targeting the problems of anemia not only among international medical students but the general student's population.

Keywords: *anemia, international students, prevalence and severity, demographics*

Effects of Miracle Berry (*Synsepalum dulcificum*) Fruit on Blood Glucose Levels of Adults At-Risk of Type II Diabetes Mellitus

Adalin, F. R. B., Apas, R. P., Bañaga, Q. R. A. D., Calimbas, M. T. D., Carorocan, J. R. Q., Dagondon, V. J., Embang, A. M., Hontiveros, D. R., Lanoy, L. G. G., Macatumbas, E. L. G., Pader, R. N. P., Pingoy, J. K. P., Polingga, C. B. R., Rufule, D. G., Silvestre, K. J. B., Ulama, R. M., Vedra, K. P. P. and Viloan, R. R. V.

COLLEGE OF MEDICINE | 2019

Type II Diabetes Mellitus (DM) remains to be one of the leading causes of morbidity and mortality in the Philippines and worldwide. Studies are targeted not only on its treatment but also its prevention. Several studies have found that several plants have antidiabetic properties. The Miracle Berry (*Synsepalum dulcificum*), native to South Africa, has a taste altering effect due to a glycoprotein Miraculin. Researchers found it to also have an α -glucosidase and α -amylase inhibitory activity, and phytochemicals with an antioxidant property that may be used to counter DM. The researchers utilized this plant for its novelty and use in the country. This study used a one group pre-test and post-test experimental design. Purposive sampling was utilized. Twenty-one respondents obtained a score of five (5) and above in the American Diabetes Association (ADA) Risk Test and a Fasting Blood Glucose (FBG) of 100 to 125 mg/dL thus are adults at risk of Type II DM. FBG was again extracted upon completion. The demographic profile of the participants showed that majority were between 40 to 47 years old, female and overweight. These participants consumed fresh Miracle Berry fruit three times a day for 14 days. The mean baseline fasting blood glucose (FBG) of the participants was 110.10 mg/dL and the mean post-test FBG was 104.95 mg/dL. The estimated mean difference was 5.15 mg/dL. Eighty-one percent (17) of the respondents had a marked decrease in Fasting Blood Glucose level after two weeks consumption. Statistically, a significant difference may be seen between the two means. Further clinical significance needs to be established on its safety, effectivity, and dosage. Thus, the Miracle berry fruit may be used as an adjunct to reduce sugar intake and lessen the incidence of Diabetes Mellitus.

Keywords: *Miracle Berry, Type II Diabetes, experimental design, lowering blood glucose levels*

Blood Ghrelin Levels and Depression Anxiety Stress Scales (DASS) Scores Among Medical Students in Davao City

Burgos, S. C., Angeles, P. A. G., Balante, N. D., Basa, L. M. C., Canta, M. D., Consigna, A. M., Cuta, R. E., Galido, M. S. G., Guerra, E. M. A., Jocson, K. A. L., Lopez, P. A. A., Olan, A., Piang, R. B., Ranay, S. G. A., Sunga, J. J. B., Unding, N., Vergara, E. A. L., and Villacorta, J. A. D.

COLLEGE OF MEDICINE | 2019

The importance of the gut brain axis in regulating stress-related responses has been long appreciated. Ghrelin, an appetite-regulating hormone, was found to have an antidepressant and an anxiolytic effect in the body. Studies show that the increase in ghrelin levels during stress condition is an endogenous stress coping behavior and increased ghrelin levels may be required to prevent anxiety-related behavior. However other studies suggest that ghrelin levels decrease during states of stress, anxiety and depression. Numerous studies done in the past have drastic differences in their conclusions. Therefore, this study aimed to add more knowledge on finding the association between ghrelin levels and Depression Anxiety Stress Scales (DASS) scores. The researchers used DASS questionnaire in assessing the current emotional situation of the participants. Blood extraction was performed, and serum was used to quantify ghrelin levels using KA1863 Ghrelin ELISA kit. Results showed that no correlation was found between the blood ghrelin levels and the depression, stress, and anxiety during DASS, which means ghrelin levels are not related to the DASS results of the participants. The researchers recommend further research about the mechanisms on how ghrelin may affect a person's mood and anxiety-related behaviors and about other hormones that may be correlated to stress, anxiety, and depression.

Keywords: *Physiology, ELISA, Ghrelin, Davao*

Effects of Welding on the Visual Acuity, Color Vision and Extraocular Muscle Activity on Welders in Davao City

Abellera, F., Alo, D. R., Aristosa, R. J., Barnizo, K. M., Blanco, J. D., Calledo, K., Cezar, J. G., Coraje, R. O., Dulambar, R. R., Fabian, E. C., Gesim, J. M., Ibrahim, H., Laurente, L. J., Maniego, J. E., Mercado, C., Naranjo, N., Pagatpatan, P. J., Putian, V. R., Ramos, C. L., Sacote, H. A., Sison, S., and Uy, B. B.

COLLEGE OF MEDICINE | 2019

To assess the effects of welding on the visual acuity, color vision and extraocular muscle activity on welders in Davao City, a descriptive study of thirty-five qualified welders was performed. The study subjects were given a questionnaire which asked for their relevant information. A board-certified ophthalmologist then evaluated the eyes of each subject. The average age for the welders was 31 years old, all the subjects were male, the average number of hours working per day was at nine hours, and the average number of years of active work as a welder was nine years. Results showed that the color vision, and extraocular muscle activity of the welders were normal. The mean visual acuity score in the right eye of the welders was 97 with a standard deviation of 6.30. The mean visual acuity in the left eye was 98 with a standard deviation of 5.63. There was no welder that had a visual acuity score that fell between 76 to 80 and between 86 to 90 in both eyes.

Keywords: *welders, visual acuity, color vision, extraocular muscle activity*

Effect of Tofu (*Soybean Curd*) on Fasting Blood Sugar Level of Prediabetic Individuals in Davao City

Abandula, H. C., Alcober, C. L. S., Asistido, J., Biruar, S. O., Cancel, V., Castaneda, E., Dulla, D., Ferrer, E., Godinez, N. R., Jalandoni, I. G., Javellana, C. A. L., Joyno, A. C., Padua, M. L. T., Paz, R. A. S., Mabalot, M. J., Magaling, J., Mudanza, J., Melendez, W., Robiso, J. K., Salce, K., Sueno, A., Vesola, D. and Yoshida, H.

COLLEGE OF MEDICINE | 2019

Pre-diabetes is typically defined as the state where blood glucose levels are higher than normal but lower than diabetic levels. Regulation of plasma glucose levels by utilizing alternative methods such as consumption of foods with hypoglycemic effect can be a useful intervention. Tofu contains isoflavones such as genistein which is known to help regulate blood glucose levels β - cells. Therefore, the overall intent of this study is to determine the effect of tofu (*soybean curd*) on the fasting blood sugar (FBS) of pre-diabetic individuals in Davao City. The study utilized a randomized controlled trial design comparing the baseline FBS and FBS after one week of the experimental and control group. A total of 101 respondents were interviewed using the diabetes risk test of the American Diabetes Association. A total of 91 respondents were screened through the FBS test, in which only 18 respondents qualified for the study proper. The overall demographic profile of the subjects in the study was mostly between ages 40 to 60, female, and was overweight. After one week of supplementation of 300 g of tofu for the experimental group, results showed no significant change. After one week of the usual diet of participants in the control group, results showed no significant change. There was also no significant difference in the change in FBS between the experimental and control groups. The researchers, therefore, concluded that tofu does not affect the fasting blood glucose levels of pre-diabetic individuals in one week.

Keywords: *Tofu, Fasting Blood, Prediabetes, Genistein*

Profiling of Non-Communicable Diseases Risk Factors among 18 to 65 years old in Purok 17-B, Barangay Wangan, Calinan District, Davao City

Quero, M. I. B. L., Quero, M. I. V. L., Peralta, A. G. L. and Patarata, K. C.

COLLEGE OF MEDICINE | 2019

Non-communicable diseases (NCDs) are the leading causes of death and disability worldwide. It continues to be an important public health problem globally. This study aimed to determine the profile of selected NCD risk factors among adults, 18 to 65 years old in Purok 17-B, Brgy. Wangan, Calinan District, Davao City. Data was collected through personal interview using the questionnaire in WHO STEPS NCD survey. Physical measurements such as blood pressure, weight, height, and waist and hip circumferences were also collected using a manual sphygmomanometer, weighing scale, height chart and tape measure. Results showed that 26% of the respondents were hypertensive. Eighteen percent of them have Stage I Hypertension and 6% have Stage II hypertension. High incidence of alcohol consumption and being overweight were noted which may be one of the major reasons that have strongly contributed to the high incidence of hypertension. There were no newly diagnosed cases of diabetes in the community. In this study, 16% of the respondents are currently smoking, 52% percent of the respondents were overweight, pre-obese and obese type I with an average of BMI of 23.12 ± 3.94 and an average waist circumference of the respondents was 84.14 ± 13.07 cm, which is above the cut off points for waist circumference. Although, there were no cases of diagnosed diabetes, generally, these risk factors are at greater risk for diabetes.

Keywords: *non-communicable diseases, diabetes, hypertension, health profile, Calinan Davao City,*

Soil-Transmitted Helminths among Children Ages 1 to 5 years old in Sitio Lower Kibalang, Marilog District, Davao City

Macaraeg, R. I., Malapit, H. J., Matilac, A., and Ontal, M. G.

COLLEGE OF MEDICINE | 2019

Soil-transmitted helminth (STH) infections have long been a public health issue worldwide, more than 1.5 billion people, or 24% of the world's population are infected. Among the 107 million population of the Philippines, approximately 9% or 8.1 million are indigenous people (IP) groups, 61% of these IP's are from Mindanao. Among the 40 children under 5 years old in Sitio Lower Kibalang, 12 children were reported to have passage of adult worms in their feces. However, there are no reported data profile of the children infected by soil-transmitted helminths. A descriptive study was utilized to determine the profile, nutritional status and the prevalence of soil transmitted parasitic infections in children aged 1 to 5 years old in Sitio Lower Kibalang, Marilog District, using complete enumeration. Patient's weight, height and mid upper arm circumference was measure, then stool bottles were distributed. Stool specimens were examined under light microscopy. A descriptive data analysis using central tendency and standard deviation were utilized. Most of the children aged 5 years old, 19 were female and 22 were male. The mean height and weight of children aged 1 to 5 years old is 89.9 cm and 12.07 kg, respectively. There are 10 children who are underweight and five children are severely underweight. There are nine children that are stunted and two children are severely stunted and six children are wasted and five children are severely wasted. There are five out of 13 children who yielded positive for STH infection, specifically, *Ascaris lumbricoides*, most common helminthic infection worldwide. It also coincides to the study of Mehraj which states that there is high prevalence of STH infection among children aged 1 to 5 years old.

Keywords: *soil-transmitted helminth, data profile, descriptive analysis, 'STH infection, high prevalence, Marilog Davao City*

Knowledge, Attitude, and Practices on Modern Family Planning of Residents from Purok 4, Barangay Cadalian, Davao City

Medina, J. C., Mulato, P. V., Mulato, P. V., Oropeza, N. M. T., and Pacana, B. T.

COLLEGE OF MEDICINE | 2019

A study on knowledge, attitude, and practices (KAP) on modern family planning was done in Purok 4, Barangay Cadalian, Davao City to identify the unmet family needs that is present in the area. The results showed that religion has no relationship with KAP. However, it shows that females have moderate to high knowledge compared to males who have poor to moderate knowledge which becomes a hindrance to the use of modern family planning and a reason for unmet family planning needs. Gender disparities also remain a strong barrier disabling the attitude against effective family planning. For practices, there is an incongruency with the male and female respondents since females use modern family planning but limit themselves to oral contraceptive pills only while males use traditional methods and avoids visiting health centers. Therefore, there is more effort that must be done to encourage respondents specially males to be more informed of the available modern family planning needs, to be aware of other methods that can contribute to modern family planning, to alter male attitudes toward contraceptives and decrease the unmet family needs of the area.

Keywords: *Knowledge, attitude, practices, modern family planning*

Maga Karanasan sa Kamay ng Karahasan: Experiences and Insights of Three Cases of Youth Violence

Magtulis, N. S., Masagnay, A. M. B., and Mercado, R. G. M. N.

COLLEGE OF MEDICINE | 2019

The descriptive study sought to determine the experiences and insights of three vulnerable youth respondents who are bonafide members of Talikala, Inc. and are residents of Purok Seaside II and Purok Matina Aplaya Tabok, Barangay Matina Aplaya, Davao City. Three respondents were asked through an in-depth interview, one by one with one question at a time, on their experiences and insights on youth violence and the presence of risk factors and protective factors in their lives. All of the answers were recorded using a recorder application in a smart phone and verification was done by repeating the questions and reading the transcript while relistening to the audiotape. The respondents provided different experiences and insights on youth violence. Youth violence takes many forms. Almost all types were present in their community. At the individual level, respondents showed high levels of risk-taking behavior, poor concentration and attention difficulties, low commitment to school, and school failure. At the close relationship level, the respondents were exposed to violence in the family through harsh, physical punishment and as a witness to intimate partner violence. Youth who also associate with delinquent peers are at higher risk of engaging in youth violence. At the community level, Purok Seaside II and Tabok is a high-density residential area where there is high poverty rate, diminished economic opportunities, easy access to alcohol and firearms, presence of gangs and a local supply of illicit drugs, and high criminality rate of prostitution, human trafficking, and drug use. There were no protective factors seen in the cases of the three respondents, making them more vulnerable to youth violence. Youths who are particularly vulnerable are also more susceptible to human trafficking. The respondents are willing to provide guidance and support to younger generations to create a future without violence. By simply guiding and being a constant support to the younger generation – the kind of guidance and support these vulnerable youth wished to have – one can do so much in preventing youth violence.

Keywords: *Youth violence, human trafficking, experiences, insights, community*

Relationship of Diet Practices to History of Hypertension, Diabetes, and Hyperlipidemia

Jitendra Valluri, Jagathish monford Vanathaiyan, Prudvi Raj Vanjavaka, Venishmaclee Vanshakumar Gloribal, Vikash Kumar Veerasamy, Sri Sai Anvita Veerapaneni, Vishnup Riyan Venkataraman, Vivedha Vijayendran

COLLEGE OF MEDICINE | 2019

Practices of unhealthy diet will lead to the development of being overweight or obese. It is responsible for the change in blood vessels by elevating cholesterol level and thickening of blood vessels wall which caused to developed hypertension subsequently lead to developing cardiovascular diseases. Likewise, excess body weight is responsible for developing Type II Diabetes. The study aimed to identify the correlation between diet practices and history of hypertension, diabetes, and hyperlipidemia by carrying out interviews with questions pertaining to their diet regimens such as fruits and vegetables' consumption, intake of salt, processed food and sugar-sweetened beverages. It was an analytical cross-sectional study and was conducted in 36 communities in 9 selected districts in Davao City. The WHO STEPS instrument was the primary tool used for data collection. The results of the study showed that the respondent's fruit consumption (number of days in a week and servings in a day), dietary salt intake during food preparation and consumption, processed food consumption and sugar-sweetened beverage consumption have a significant relationship with hypertension but showed insignificant relationship with diabetes and hyperlipidemia.

Keywords: *relationship, diet practices, history of hypertension, diabetes, hyperlipidemia*

Correlation of Educational Attainment to Tobacco Use and Alcohol Consumption Among Residents in the 36 Selected Communities in Davao City

Aravind Raj Shanmugam, Mohan Kumar Shanmugam, Preethi Priyatharshni Shanmugam, Sathya Shanmugam, Jayalaksmi Shanmugasundaram, Afithia Fathima Shiek Abdul Kadher, Thangavivek Shivaswamy, Shenbaga Divya Shunmugam

COLLEGE OF MEDICINE | 2019

The study used a descriptive quantitative method in determining the correlation of education attainment to alcohol consumption and tobacco use among respondents in the 36 selected communities in Davao City. The results showed that 41% are alcohol drinkers and 21.5% are smokers. About 57% majority of the respondents have high school education attainment. The study showed that there is significant relationship between the education attainment to tobacco use and alcohol consumption among the respondents. These results parallel to those study conducted by Agency for Health Care Research and Quality (AHRQ). This study showed that there is possibility of increase in the number of smokers and alcoholics that may lead to non-communicable disease in future. Nevertheless, it must be considered that this is only an assessment test, and the results are dependent to the study group.

Keywords: *alcohol consumption, tobacco use, profile, correlation, Davao City*

Relationship Between Diet Practices and Blood Pressure among Residents of 36 Selected Communities in Davao City

Veeralankamma Vanukuri, Vinolini Veeramani, Harini Veeraragavan, Jasmine Jade Veliyath, Allan Chalcedony William, Pranavkumar Himanshukumar Yagnik, Zahik Husain Yasar Arafath

COLLEGE OF MEDICINE | 2019

An abnormal blood pressure, whether high or low is a problem if not addressed correctly. It can lead to a variety of complications, such as stroke, and heart failure, if left uncontrolled. The study aimed to identify the correlation between diet practices and blood pressure by carrying out interviews with questions pertaining to their diet regimens such as intake of salt, processed food, and sugar-sweetened beverages. It was an analytical cross-sectional study and was conducted in 36 communities in 9 selected districts in Davao City. The World Health Organization (WHO) STEPS instrument was the primary tool used for data collection. The results of the study showed that the respondent's fruit and vegetable consumption (number of days in a week and servings in a day), dietary salt intake during food preparation and consumption, processed food consumption and sugar-sweetened beverage consumption have an insignificant relationship with Mean Arterial Pressure (MAP).

Keywords: *relationship, diet practices, blood pressure, MAP, Davao City*

Selected Demographic and Health Profile as Predictors of Diabetes Among Female Persons Deprived of Liberty in Gawas Kalinga-Ray of Hope Village, Maa, Davao City

Estores, K. J., Jurilla, J. R. R. and Kho, N. A. P.

COLLEGE OF MEDICINE | 2019

Diabetes is a serious, chronic metabolic disease and remains to be an important public health problem despite nationwide and global efforts in its prevention and control. In Gawad Kalinga Ray of Hope Village, there are currently 15 female Persons Deprived of Liberty (PDLs) known to have Type II Diabetes Mellitus (DM). Thus, the researchers intended to determine the predictors of Type II DM among the female PDLs of GK Ray of Hope Village, Maa, Davao City. This study used the descriptive research design and a case control methodology. Participants were composed of a case group (15 DM) and control group (95 non-DM). The following criteria was imposed in selecting the respondents for the case group: (a) diagnosed case of Type II DM; and (b) taking hypoglycemic medications. The following criteria was imposed in selecting the respondents for the case group: (a) not a diagnosed case of Type II DM, and (b) a fasting blood sugar result of less than 5.6 mmol/L [100 mg/dL]. Fasting blood sugar test was performed and a questionnaire tool was developed, validated and utilized to interview and gather data from the participants. The researchers utilized both quantitative and qualitative data. The quantitative portion used by the researchers for the data gathered were subjected to descriptive and univariate analysis. Results showed that only civil status, family history of DM, hypertension, and GDM were associated with DM. Those respondents with partners have 22% risk of having DM. There is 26% prevalence rate of DM among respondents with family history of DM. Lastly, the prevalence rate of DM among those with GDM is 88%.

Keywords: *Female Deprived of Liberty (PDLs), Type II Diabetes, demographic and health profile, descriptive and univariate analysis, Davao City*

Baseline Knowledge on RA 9262: Anti-Violence Against Women and Children Law among Selected Families in Purok Parola, Barangay Sasa, Davao City

Ali, R. M. B., Amatonding, R. D., and Aquino, M. A. O.

COLLEGE OF MEDICINE | 2019

Nowadays, there are many cases of abuse against women and children. In the year 2004, a law was enacted intended to protect women and children called “Anti-Violence against Women and Children Act of 2004” (Anti-VAWC) or Republic Act 9262. About one in three (35.6%) women across the world have experienced either physical or sexual intimate partner violence or non-partner sexual. In the Philippines, at least one in 20 women aged 15 to 49 years old said they experienced some form of sexual violence. Of those who were abused, only one out of three (34%) women sought help or reported the incident. This study was a descriptive research study. The study was conducted in Purok Parola, Barangay Sasa, Davao City, Davao del Sur, Philippines. This is a suitable area to study the level knowledge about R.A. 9262 since 55% of the population had history of domestic abuse. The average age range of the respondents is 22 to 52 years old. Most of the respondents are not college graduates, hence, may have limited knowledge and exposure of the Anti-VAWC law. The scores in law implementation, term and condition, and rights and condition were added and interpreted based on the scoring system provided by the researchers. It showed that 62.5% of the respondents have poor knowledge, 37.5% had good knowledge and none of them had excellent knowledge on the R.A. 9262 or Anti-Violence Against Women and Children law. Most respondents are not aware of the cases they could file against their husbands, live-in partners, or boyfriends. This result may also mean that there is ineffective law implementation of the Anti-VAWC Law. These results still shows that there is insufficient evidence to conclude that there is significant relationship between the civil status of the respondents to their knowledge on RA 9262.

Keywords: *Anti-Violence against women and children law, knowledge, significant relationship, Sasa Davao City*

Back to Basics: Indigenous Technical Knowledge of Lumads in the Management of Immunizable Diseases in Children Under Five in the UCCP Haran Evacuation Center, Davao City

Amparo, C. A. M. C., Babac, A. P. Y., Barlis, D. B., and Bata, P. M. M.

COLLEGE OF MEDICINE | 2019

Traditional medicine has been used by majority of the world population long before the age of modern medicine, it is defined as the sum total of knowledge, skill and practices based on theories and belief, which is indigenous to different cultures. UCCP Haran Center is sanctuary for indigenous people temporarily settled in a church-owned compound. It is noted that majority of the population is composed of children under 5 years old. This population at hand are from highly militarized areas that were evacuated in the city to safeguard from the ongoing strife in their area. While in their respective communities, the people hardly are given medical attention by the local health sector because of the inaccessibility of the area and due to problems in security. This resulted to poor vaccination of children under five years old. Cases of measles, mumps, varicella, diarrhea, and pneumonia are rarely seen as a consequence of their geographic isolation. But when these cases do arise, indigenous people have their own way of successfully managing the disease. The researchers wanted to narrate the indigenous technical knowledge the Lumads used before their evacuation to UCCP Haran. Focused group discussion and key informant interviews were used to collect data needed for this research. Results revealed that indigenous technical knowledge is effective in treating occurrence of vaccine preventable diseases and shows how the birth of common day medicine is rooted in indigenous knowledge.

Keywords: *indigenous people, traditional medicine, common day medicine, immunizable diseases, UCCP Haran Evacuation Center, Davao City*

Effectiveness of Focused Group Discussion Over Traditional Lecture on Improving Mosquito Control Practices of Residents in Purok 2-B, Barangay Malagos

Aquayo, D. K., Alba, M. D., Alegro, H. J. R., Anima, J. P. H. G., and Buscato, C. G.

COLLEGE OF MEDICINE | 2019

Mosquitoes are the world's deadliest animal seizing 700,000 lives annually. Global and local efforts have been made to educate the community on mitigating the devastating effects of mosquito borne illnesses through traditional lecture series. Despite these efforts, mosquito borne illnesses continue to intensify. Death of knowledge on utilizing different teaching methods to improve outcome lead this research to determine the effectiveness of focused group discussion over traditional lecture on improving mosquito control practices. The study was conducted in Purok 2-B, Barangay Malagos, Baguio District, Davao City from which 70 households were randomly selected and assigned into two groups according to type of learning methods: (1) Focused-group discussion, and (2) Traditional Lecture. A two-group pre-test and post-test quasi-experimental research design was utilized. Baseline practices and number of potential breeding sites were compared to the post-interventional practices and the number of positive containers. Moreover, post-interventional practices and number of positive containers of respondents taught by traditional lecture were compared to those who had focused group discussions. The study revealed that the mean scores of practices of respondents who had focused group discussion were significantly higher compared to those taught by traditional lecture. Moreover, mean scores of positive containers of respondents who had focused group discussion were significantly lower compared to those taught by traditional lecture. Thus, focused group discussion is more effective over traditional lecture on improving mosquito control practices and reducing number of potential breeding sites.

Keywords: *mosquito control practices, information dissemination method effectiveness, significant scores, focused grouped discussion, traditional lecture*

Prevalence of Personality Disorder Among Male Persons Deprived of Liberty (PDLs) in Bureau of Jail Management and Penology Davao City Jail Annex, Maa, Davao City

Ayub Jr., J. D., Brevia II, M. B., and Burgos, J. B.

COLLEGE OF MEDICINE | 2019

There are increasing rates of suicide among prisoners with a higher relative risk of death in males as compared with the general population. The documented prison suicide rates in northern and western Europe have reached more than 100 per 100,000 prisoners per year. Association between suicide attempts and personality disorder has been consistently shown by research. Thus, this study focused on the prevalence of personality disorder among persons deprived of liberty (PDLs). The study utilized a descriptive type of research design to determine the prevalence of personality disorder among male PLDs in Bureau of Jail Management and Penology (BJMP) Davao City Jail – Annex, Purok 25, Barangay Maa, Davao City. During the study, there were 568 male PDLs in the facility. The PDLs who are already diagnosed with any psychiatric illness and not willing to participate in the study were not included. A total of 102 PDLs became the final respondents and a complete enumeration sampling design was then used in the study. The Standardized Assessment of Personality – Abbreviated Scale (Moran) was used as a questionnaire to assess the prevalence of personality disorder among the respondents. A total score of three or more out of eight indicates that personality disorder is likely present. Based on the scores, 43 PDLs were categorized as likely to have a personality disorder while 59 PDLs were categorized as unlikely to have a personality disorder.

Keywords: *prevalence, personality disorder, male PDLs, Davao City*

Risk Factors Profile for Increased Blood Pressure Among Adults in Purok 15 Barangay Wangan, Calinan, Davao City

Alay, M. F., Ambrad, K. J., Ambrosio, M. R., Andales, C. D., and Andan, R. P.

COLLEGE OF MEDICINE | 2019

The objective of this study is to examine the risk factors for increased blood pressure in Purok 15, Barangay Wangan, Calinan, Davao City. This study utilized the descriptive research design to describe the socio-demographic, environmental and physical health profile of 36 respondents who were chosen by random sampling and inclusion and exclusion criteria. The results showed that the average age of the respondents is 43.36 years old. Most of the interviewed respondents were females, and many of them were housewives. Among the respondents, three were smokers and all of them are female with age ranging from 30 to 50 years old. The respondents who smoke had an average of 3.33 pack-years consuming an average of 12 sticks per day. For the alcohol consumption, only nine respondents were alcoholic beverage drinker, most of them were females between ages 24 to 50 years old and consumes at least one to five bottles per occasion. For the diet and exercise, most of the respondents consumed one to five bottles per occasion. For the diet and exercise, most of the respondents consumed one to two cups of rice per meal and used palm oil as the preferred cooking oil. Among the respondents, only 14 were exercising daily with the preference of moderate intensity type of exercise. Increased body mass index was the most prevalent risk factor identified in the purok. Most of the respondents were overweight accounting 17 of the total number of respondents, nine were classified as obese class I and three are classified as obese class II. Based on the results above, the researchers of the study concluded that increased body mass index was the most prevalent risk factor identified in the purok. With these, the purok is made to be aware of the risk factors which would help them prevent developing hypertension by active physical activity, proper diet and decreased to no alcohol intake and tobacco use.

Keywords: *increased body mass index, prevalent risk factor, Davao City*

Trending of Documented Cases of Undernourished Children of Aged 0 to 71 months Residing in a Selected District of Davao City from 2016 to 2018

Aleena Anna George, Ganesh Bala Bhagavathi Perumal, Gandrati Sriman, Goudhakatla Narendra

COLLEGE OF MEDICINE | 2019

Malnutrition, with its two constituents of protein-energy malnutrition and micronutrient deficiencies, continues to be major health burden in developing countries. It is globally the most important risk factor for illness and death, with hundreds and millions of pregnant women and young children particularly affected. High prevalence of poor diet and infectious disease regularly unites into a vicious cycle. Although treatment protocols for severe malnutrition have in recent years become more efficient, most patients especially in rural areas have little or no access to formal health service and are never seen in such settings. Interventions to prevent protein energy malnutrition range from promoting breast feeding to food supplementation schemes, whereas micronutrient deficiencies would best be addressed through home gardens and small livestock. Poverty is the main underlying cause of malnutrition and its determinants. The degree and distribution of malnutrition and micronutrient deficiencies in a given population depends on many factors: the political and economic situation, the level of education and sanitation, the season and climate conditions, food production, cultural and religious food customs, breast feeding habits, prevalence of infectious diseases, the existence and effectiveness of nutrition programs and the availability and quality of health services. To be effective, all such interventions require accompanying nutrition-education campaigns and health interventions. To achieve hunger and malnutrition related Millennium Development Goals, we need to address poverty which is clearly associated with the insecure supply of food and nutrition.

Keywords: *documented cases, malnutrition, undernourished children*

Health-Seeking Behavior Profile of Household Heads in Purok 14, Barangay Wangan, Calinan, Davao City

Babatid, M. J., Bayogos, M., Bidad, V., Biene, K. M., and Biolanco, J.

COLLEGE OF MEDICINE | 2019

When the household head gets sick, he or she needs to independently decide to seek health care because if not the effect to his or her family being the provider is very substantial. Health seeking behavior is important in the early diagnosis of a disease for appropriate intervention and effective treatment. Early utilization of health care services can reduce the morbidity, disability, and mortality but unfortunately it remains to be inadequately used. In the Philippines, very few studies have been conducted regarding health-seeking behavior. Hence, the researchers sought to determine health-seeking behavior profile of household heads in Purok 14, Barangay Wangan. A descriptive research design was conducted among 54 qualified respondents. The age group, 30 to 39 years old, comprises most of the population (37%). Majority of the household heads were male (83%), married (58%), with family size less than six members (89%), finished secondary level (54%), monthly income of Php 5,001 to 10,000 (61%), members of Philhealth (75%) while only 4% had health insurance. For the last year, majority of the respondents had cough, colds, and fever (71%). About 74% of the respondents had inappropriate health-seeking behavior where 80% self-medicated and majority of their reasons were due to perceived severity of illness (86%). On the other hand, only 26% had appropriate health-seeking behavior where 50% sought to consult in Private Clinic and most of their reasons were due to prompt attention (43%).

Keywords: *health profile, health seeking behaviour, household head*

Gender-Based Violence Experiences of Selected Prostituted Women in Davao City: A Qualitative Study

Francisco, B. O., Guarra, I. P. A., and Gumarang, J. B.

COLLEGE OF MEDICINE | 2019

This case series qualitative study sought to document the lived experiences on Gender-Based Violence (GBV) of the marginalized and stigmatized social group of the community – the prostituted women, either actively involved or survivor of prostitution. The seven (7) participants of legal age were interviewed and the researchers used a pre-determined set of guide questions translated to vernacular Visayan dialect. The whole interview was voluntarily consented. Data were collected, transcribed, and analyzed through horizontalization, textual analysis, and structural analysis. The results of the study showed that most of the respondents experienced gender-based violence both inside and outside of prostitution. For physical violence, participants' experiences range from physical assaults, and rape, verbal and psychological forms include verbal discrimination, catcalling and intimidation by gunpoint. Its impact to victims can be demeaned dignity and self-value, isolation or depression to emotional and psychological trauma aftereffects. The defense of victims is mostly just escape or evade the perpetrator. There is a significant number of experiences of gender-based violence among prostituted women involved in this study. Most incidents were unreported and some were not given justice. It is the immediate need of the barangay, police and national government, non-government organizations, and those concerned in this research area to be sensitized to the issue of gender-based violence on women involved in prostitution.

Keywords: *Gender-based Violence (GBV), prostituted women, prostitution*

Scarred but Survived, An Inside Look at Suicide Among Selected Prostituted Women: A Qualitative Study

Homez, G. A. E., Lim, J. B. L., Magana, M. A, and Tolentino, B. S.

COLLEGE OF MEDICINE | 2019

This case series study aimed to discover the reasons that led women in prostitution into suicidal behaviors. Nine (9) prostituted women were interviewed with open-ended questions adapted from a set of standardized questions on suicidal behavior and depression. The discussion is recorded using a voice recorder with the respondents' consent. As data were gathered, it was discovered that the reasons these women entered prostitution was because of poverty, dysfunctional family relationship and problematic romantic relationship. All of them experienced depression and had suicidal ideation while some indeed attempted to end their lives. Triggering factors were abusive family and partners, relationship problems, neglect, loneliness, vices, and unemployment. Thoughts of strangulation and wrist cutting were identified. Most of them shared that their family, children, partners, and their strong spiritual faith are their biggest inspirations to continue surviving.

Keywords: *suicide, prostitution, qualitative study*

Prevalence of Elevated Blood Pressure and its Risk Factors Among Residents of Sitio Lower Patac, Barangay Tamugan, Marilog District, Davao City

Adjilani, S. F. F., Estepa, V. A. T., Haw, J. T. P., Nogadas, K. C. P., and Pepito, P. R.

COLLEGE OF MEDICINE | 2019

Elevated blood pressure is prevalent among developing countries especially in rural communities. There is insufficient data to support further efforts in detection of uncontrolled raised blood pressure among this population group. A quantitative descriptive study was performed to identify prevalence of elevated blood pressure among residents of Sitio Lower Patag, Barangay Tamugan, Marilog District, Davao City. Lifestyle and risk profiles of residents were collected using an interview-administered questionnaire and anthropometric and mean blood pressure levels were also assessed. Results for lifestyle profile showed that there were 35% who were current smokers, 17.5% who consumed more than 6 standard drinks, 41.25% who does not exercise or have sedentary lifestyle, and 61.25% who use dietary salt every day of the week. The above results showed that there is a large number of residents who have uncontrolled hypertension and have associated risk factors for the development of such.

Keywords: *Public health, Elevated blood pressure, Lifestyle profile, Anthropometric measurements, Quantitative descriptive, Marilog district*

Knowledge and Attitude on Hypertension Among Affected Inmates in a Correctional Facility in Davao City

Gamalo, M., Lim, C. E., and Limen, N. F.

COLLEGE OF MEDICINE | 2019

Hypertension remains a global health issue especially in developing countries. Moreover, being incarcerated carries a more pronounced risk in developing hypertension. Thus, arises a need to determine the knowledge and attitude of these individuals affected by hypertension to assess what can be done to improve the status quo. This research was done at Bureau of Jail Management and Penology (BJMP) Annex, Maa, Davao City. Forty-six (46) respondents willingly cooperated to be included in the study. A descriptive study design was used to examine the respondents' knowledge and attitude towards hypertension by utilizing a self-administered questionnaire. The results showed that most of the respondents are between 51 to 60 years old (17 out of 46). This coincided with the fact that hypertension increases in frequency as age advances. Majority of the respondents were married (27 out of 46), and finished secondary education (20 out of 46). There were 32 out of 46 who have good knowledge about hypertension. The results were also categorized by educational attainment. It showed that those who finished tertiary education have higher relative frequency of having good knowledge about hypertension. Majority of the respondents have positive attitude towards hypertension. Further categorization showed that respondents aged 21 to 60 years old have positive attitude towards hypertension.

Keywords: *knowledge, attitude, hypertension, inmates*

Health Status of Children Under-Five in Purok 9, Barangay Cawayan, Calinan District, Davao City

Cabada, J. Q., Chan, J. A., Laurencio, J. R. J. A., Mahinay, K. M. A., and Sialana, L. L. R.

COLLEGE OF MEDICINE | 2019

The health and well-being of children is associated with numerous outcomes on their mental, social, and economic development. The study aimed to describe the health status of children under-five (0-59 months) in Purok 9, Barangay Cawayan, Calinan District, Davao City. The study utilized descriptive quantitative design in which the health status of 50 children under-five were investigated. The results indicated that 12% of the children under-five were classified to be underweight, 6% were severely underweight, 26% were stunted, 6% were severely stunted, and 10% were severely wasted. UTI (10%) and Pneumonia (8%) were the top two diseases that caused hospitalization among children under-five years. Seventy-six percent of the children aged 2 to 5 years old were recognized as FIC based on WHO EPI. Forty-six percent started complementary feeding less than six months. Rice-vegetable combination were mostly consumed by 19%, 21%, and 27% of the children during breakfast, lunch, and dinner, respectively. In the present studies, it is clear that Davao region has an increasing prevalence of malnutrition along with other factors comprising child health. It is very important to encourage health workers to teach the mothers on how to properly take care of their children along with education on the significance of practicing exclusive breastfeeding and giving of adequate nutritious food to their children to combat the increasing rate of malnutrition.

Keywords: *public health, child health, malnutrition, health profile, Calinan Davao City*

Take Care of Your Heart, Don't Let it Fall Apart

Barnuevo, C. T., Cajés, K. P. N., Miralles, E. V. G., Panes, M. G., and Segocio, G. M. D.

COLLEGE OF MEDICINE | 2019

Hypertension is known as a silent killer of all non-communicable diseases. In Davao region, hypertension is a leading cause of morbidity. The non-adherence to treatment is one of the major contributing factors to poor management and most commonly occurring in patients with hypertension, for it increases the risk of coronary and cerebrovascular events. In Purok 3-A, Barangay Malagos, Baguio District, Davao City, this study has identified 22 non-adherent hypertensive residents which resulted for this study to understand the non-adherence to therapeutic regimen of selected hypertensive resident of Purok 3-A. The researchers used phenomenological research design, exploring the reasons for non-adherence. The researchers utilized purposive sampling procedure in which out of the 22 identified non-adherent hypertensive residents, 10 were selected for an in-depth interview, eight for Focused Group Discussion (FGD), and one for key informant interview. These are the following themes identified: lack of self-discipline, living a normal life, maintains a healthy lifestyle, physiologic changes, no physiologic changes, decreased activities of daily living (ADLs), feelings of fear, no worries, sense of self-control and proper management, acceptance of the condition, feelings of fear and apprehension, acceptance of taking medicines, financial burden, no side effects, subjective feeling of wellness, causes side effects, forgetfulness, poor attitude towards medication regimen, increase knowledge level, reminder from significant others, routinization of medication regimen, availability of free medicines, change of medication, and increase patient empowerment. Through this study, the health care provider can propose activities that would address this issue on non-adherence and would encourage the residents to adhere to their medication and give utmost importance to their health.

Keywords: *hypertension, non-adherence, phenomenological study*

Dengue Indices in Sitio Crossing S., Marilog District, Davao City

Mosura, J. M. A., Agbayani, S. J. V., albani, N. E., and Fontanilla, J. P. G.

COLLEGE OF MEDICINE | 2019

Dengue is the most common vector-borne disease in the world and it has been a continuous health problem among communities which can be prevented by proper health practices. This study aimed to describe the present dengue situation of Sitio Crossing S., Marilog District, Davao City in which a quantitative descriptive research design was utilized. A total of 111 houses were examined for mosquito larvae and 36 houses (32.4%) were found to be positive. The larvae were found in a total of 46 artificial containers. After collecting the mosquito larvae, they were viewed under the microscope and identified until species levels. Two species of *Aedes* mosquito were identified, *Ae. Aegypti* and *Ae. albopictus*. The House Index (HI) and Breteau Index (BI) value for this study was interpreted as high risk while the Cointer Index (CI) value revealed as low risk. The HI was more than 10% (32.4%) which indicated that the area was at high risk for dengue transmission and high spread of mosquito larvae. This resulted in a significant risk of acquiring dengue in the area. This study also revealed a CI of 2.2% which classified the community as low-risk. Lastly, the BI is 41.4% which is within range of high risk (35-50%). This implied that the area of study has a high risk of transmission of dengue. This study can help the community as well as local health authorities to identify the appropriate actions to be taken based on the risk classification produced by this research.

Keywords: *Public health, Aedes larvae, House Index, Breteau Index, Container Index, quantitative descriptive research design, Davao City*

Knowledge and Attitude on Artificial Family Planning Among Displaced Indigenous Reproductive Aged Women in UCCP-Haran

Arсад, M. A. H. U., Briones, R. I. M. B., De Guzman, A. E. S., and Obenza, A. S. M.

COLLEGE OF MEDICINE | 2019

Unmet needs for family planning remain a reproductive health problem in most developing countries. In the Philippines, it is more apparent in the poor communities, especially those situated in geographically isolated and disadvantaged areas. Thus, arises a need to determine factors to affect usage, such as the level of knowledge and attitude towards family planning to assess what can be done to improve the situation. This research was done at the United Church of Christ in the Philippines (UCCP)-HARAN, Father Selga Street, Madapo, Davao City. Seventy-six participants willingly cooperated to be included in the study. A descriptive study design was used to determine their level of knowledge and attitude towards family planning using a questionnaire. The results showed that most of the respondents aged 15 to 19 years old (18 out of 76). However, majority of the participants are married, while half reached primary level of education. Majority of the participants were found to have moderate level of knowledge on family planning. They were mostly found to have a positive attitude towards family planning.

Keywords: *artificial family planning, public health, knowledge and attitude, descriptive study*

Relationship Between Family Profile and Solid Waste Management Practices of Households in Purok 3-B, Barangay Tibungco, Bunawan District, Davao City

Domingo, A. M. L., Guinta, S. M. K. P., So, M. T. and Zailom, Z. E.

COLLEGE OF MEDICINE | 2019

Solid waste generation continues to be a problem in developing countries and is posing threats to health, environment, and society. The Purok 3-B in Barangay Tibungco, Davao City is no stranger to the consequences of improper solid waste management. The study aimed to determine the level of the solid waste management practices of residents in Purok 3-B, barangay Tibungco, Bunawan District, Davao City and determine the relationship of the family profile with regards to solid waste management practices by administering a standardized questionnaire. A descriptive-correlational study design was utilized in this research. Households were chosen through the random number generator by Microsoft Excel 2019. A total of 107 household members were randomly selected using the KISH method. Demographic profile such as age, sex, marital status, education attainment, family size, and monthly income were obtained. Results showed that age, sex, educational attainment, and family size are associated with solid waste management practices of the residents. However, marital status and monthly income showed no significant relationship with regards to solid waste management practices. The median scores imply that there is a need for information, education, and campaign for those groups who scores lower and this study can help craft programs that can address the issue of solid waste management practice by campaigning in raising awareness about solid waste management and adapting to changes in the community.

Keywords: *Community Medicine, family profile, solid waste management practices, descriptive-correlational study design, Tibungco, Davao City, Philippines*

The Epidemiology of Dengue in Purok 9 and 10, Barangay 32-D, Davao City

Akinaboina, S. K. Y., Abdul Pari Ramjan Begum, Akbar, A. R., and Akkineni Akhila

COLLEGE OF MEDICINE | 2019

Dengue is the most common and widespread arboviral infection in the world today. It is an increasingly prevalent tropical arbovirus infection with significant morbidity and mortality. This is a descriptive study on the epidemiology of Dengue in 100 houses in Purok 9 and 10 specifically on the incidence of dengue, house index, Breteau index, and container index, *Aedes aegypti* index and household practices. There were no dengue cases in the past 12 months. The house index and container index were 5% and 0.36% (or 3.6 per 1000 containers), respectively. Since there were no *Aedes aegypti* larvae found, the *Aedes aegypti* index and Breteau index were 0%, respectively. Fogging was done by the City Health Office three times a year. The respondents revealed that their households practiced dengue prevention practices to protect their household member from the bite of the mosquitoes. Their self-protection practices in the households included spraying insecticide (45%), use of mosquito coil (55%), use of mosquito repellent (26%), use of impregnated mosquito nets (24%), and burning of leaves (20%).

Keywords: *Public Health, Incidence of Dengue, House Index, Breteau Index, Container Index, Descriptive, Davao City*

Description of Nutritional Status Among Children Between 0 to 15 Years Old in Health District Agdao Communities

Gombi, P. R., Gopalakrishnan, A. P., Govindaraj, P. Gottomukala, M. S., Jadhav, T. S., Jainulabudeen, N., Jaishimhaa, R., and James Jayaraj, A. R.

COLLEGE OF MEDICINE | 2019

Nutritional status is condition of the body in those respects influenced by the diet, the levels of nutrients in the body and the ability of those levels to maintain normal metabolic integrity. Improving the nutritional status of children has always been a global problem. Around 33% children under age 5 years are suffering from malnutrition in Philippines. A nutritional survey adopted from World Health Organization using descriptive study design was conducted among 202 households in Purok Bahong Buhay, Purok 6-A and 6 under health district Agdao. A total of 308 children limited to Purok Paciano Bangoy, Purok 6 and 6-A from 202 households were interviewed for the nutritional status of children from 0 to 15 years old for a period of 3 weeks. Results showed that for girls, underweight for age, 124 are normal, 19 are underweight and 3 are overweight, under height for age, 99 are normal, 44 are students and 3 are tall, under BMI, 115 are normal, 25 are underweight and 4 are overweight. For boys, underweight for age, 131 are normal, 23 are underweight, and 8 are overweight, under height for age, 113 are normal, 41 are stunted and 8 are tall, under BMI, 116 are normal, 33 are underweight, and 5 are overweight.

Keywords: *nutritional status, child health, public health, Agdao*

Living with Stigma: Experiences and Coping Mechanisms of Children in Lawig Bubai

Agujetas, W. D. O., Alaba, L. K. L., and Arquiza, A. L. B.

COLLEGE OF MEDICINE | 2019

In a conservative country like the Philippines where prostitution is illegal, the social stigma against sex work will always exist. In this study, the researches sought the insights of three prostituted young women aged 17 and below who are registered members of Lawig Bubai, Inc. on their life experiences in prostitution, on the stigmatization, and their coping mechanisms. A qualitative descriptive research design was used in order to narrate the ways they deal with their current situation at home and in the community. The three respondents were drawn into their field of work due to financial needs. Two of them helped provide for their family while the other wanted to be independent and be able to buy non-essential wants out of peer pressure. Two of the respondents have no problems with disclosure as some of their family members were also in the same line of work. A participant claimed her parents had ideas about her work because of the money she provided them regularly. Of the three participants, one did not feel any stigmatization at all while the other two felt emotional and physical distress when they felt they were judged by family, friends, and the community. However, the respondents claimed that they had their own ways of coping stress, either through vices or schoolworks. Exiting prostitution has always been a plan, but until they get monetary or moral support, they express the difficulty of opting out of the business.

Keywords: *Child Prostitution, Stigma, Coping Mechanisms, Davao City*

Determination of Levels of Post-Vaccination Rabies Antibodies in Dogs in Davao City

Montilla, A. M. S., Diaz, I. R. S., and Respecia, K. M. P.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

The study in domestic dogs with history of vaccination against Rabies virus were tested for Antibody titer for Rabies virus in the area of Talomo District, Davao City. The study aimed to determine the relationship of the protective levels of antibody and identifying the types of transmission and intervention programs in the locality. Eighty blood serum samples were randomly collected from Barangay Times Beach, SIR Sandawa, Libi, Bago Gallera and Matina Pangi. Some samples were taken from mass vaccinations in UP mintal, Barangay Ma-a and City Veterinarian's Office in March to April of 2019. The blood serum samples were submitted for ELISA or EIA Testing. Wherein, RV IgG will be measured by using an enzyme-linked immunosorbent assay, a test that detects and measures antibodies in blood. The results in serological testing revealed that maternal antibodies were detected in 89%, and 11% did not have protective levels of antibody (<0.5EU) among the 80 dogs being tested. The vaccination of dogs against rabies is an effective method for the control of the disease and its transmission to humans and this is by completing the course of vaccination.

Keywords: *rabies virus, vaccination, control method, antibody titer*

Preliminary Report of Mosquito Taxa in Mt. Hamiguitan Range Wildlife Sanctuary and Davao Medical School Foundation, Inc.

Cawa III, J. T., Guillano, N. A. P., Kim, S., and Villaflores, M. L. E.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

Mosquitoes are among the deadliest animal in the world that infects and kills about 500 to 700 million people with different diseases that can be transmitted through mosquito bites. With this, the study was conducted in two different elevations (montane and mossy areas) of Mt. Hamiguitan Range Wildlife Sanctuary for the comparison of mosquito larvae in different altitude. Also, the study was conducted in Davao Medical School Foundation, Inc. for the comparison of abundance of mosquito larvae between rural area and urban area. This study dealt with the collection, and identification of mosquito larvae that are present in the area to the lowest possible collected from a carnivorous plant called Pitcher Plant (*Nepenthes*) by the use of identification tool. A total of 267 mosquito larvae were gathered and were identified into three species (*Aedes aegypti*, *Culex spp.*, *Anopheles spp.*): 125 *Ae. Aegypti*, 107 *Culex spp.*, and 35 *Anopheles spp.*. Three identified species were anthropophilic which could be vectors for some diseases. The researchers recommend the conduct of further studies regarding entomologic profiling of mosquitoes for better understanding of mosquito species in Mt. Hamiguitan Wildlife Range Sanctuary and Davao Medical School Foundation, Inc.

Keywords: *mosquito larvae, altitude, urban area, rural area*

Vegetative Analysis of Selected Green Spaces in Davao City

Limbona, B. R. M., Urbano, P. E. P., and Zamora, I. J. T.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

The continuous increase in urban development acts as a major challenge in environmental changes worldwide because it is well-known to negatively affect biodiversity. Green spaces, especially urban parks, are a crucial part of the complex urban societies environmentally, aesthetically, economically, recreationally, and psychologically. Here, given greenspace sites were studied whether the greenspaces of Davao City (metropolitan area) were planted with the right species of plants, including trees, shrubs, and weeds. The results showed that 62% of the species planted were introduced, 24% were endemic, and 14% were indigenous. Introduced species have the possibility of becoming invasive, and if most invasive plants substantially and consistently outperform co-occurring natives, serious and widespread reduction in global biodiversity, both flora and fauna, can be expected. The study confirmed, for the first time in Mindanao, City of Davao, that greenspaces in the metropolitan area are substantially composed of introduced species, and that sufficient research about plant species must be conducted before planting to ensure the plants will not be hindrances to the community. Adequate study must be done to guarantee that the lives of the local fauna are be supported and not inviting foreign, possibly invasive species that could cause an imbalance in the local ecosystem. Plant species must also be planted for their ecological benefit and not wholly for their aesthetics.

Keywords: *greenspaces, urban area, vegetation*

Vegetative Analysis of Green Spaces of Selected Subdivisions in Davao City

Cambronero, J. B., Lao, K. S. M., and Romero, R. J. D.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

In an urbanized area like Davao City, where population growth and land conversion to housing are apparent, green spaces are essential elements to a livable and sustainable city life. To analyze the vegetation in the greenspaces in three subdivisions in Davao City: A high-cost subdivision, a mid-cost subdivision and a low-cost subdivision. Plot sampling technique was used to assess the plant species composition and a quadrant was randomly chosen. Plant species were also documented for identification and determination of its conservation status. Results revealed that 50 plant species were identified: 26 were weeds, 10 were shrubs, and 14 were trees. Certain species like, *Ficus benjamina*, *Dianella ensifolia*, *Callistemon citrinus*, *Cyanthilium cirenium* and *Euphorbia hirta* were common. High-cost subdivision's Park II had the highest value in terms of species richness since it had the highest number in trees and weeds species. Most of the plants were introduced and invasive; shrubs were mostly invasive; most trees were exotic and weeds were dominantly native and exotic. This study aimed to raise awareness for the value of green spaces in an urban setting especially in Davao City. This study will also help the city have a greener and healthier environment for the present and future generation. The study recommended that the policymakers, politicians, scientist, and the locals should work hand in hand in order to realize the importance of being sustainable in a developing city through green spaces. In this way, policy makers would be able to incorporate the care of city green spaces as a key element in urban planning.

Keywords: *greenspaces, urban area, vegetation, Davao City*

Avian Diversity and Richness of Urban Green Spaces in Davao City

Emboscado, M. L. A., Moran, D. A. C., and Paclibar, S. C.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

The impact of urbanization held great effect in both natural green environment and species diversity. This led to an increase in avian biomass but a cutback in richness. The study provided the information on the urban effects on avian biodiversity and its community in the green spaces of Davao City. In comparison to other organisms, birds are important determinants to assess the quality of a habitat. Accompanied with several factors, including their conspicuous nature, they were relatively easy to survey and their response to human-related disturbances helped on highlighting the intensity of urbanization. The research had a principle objective to determine if the common workplace (DMSFI) and residential area (Insular Village Phase 1) of the researcher' harbor avian biodiversity within their designated green spaces. A point-count method was used within the one month period avian survey. A total of 20 species was observed belonging to 16 families namely: Sturdinae, Pserridae, Nectariniidae, Dicaeidae, Calumbidae, Pycnonotidae, Rhipiduridae, Alcedinidae, Hirundinidae, Apopidae, Artamidae, Lannidae, Corvidae, Oriolidae, Estrildidae and Megalaimidae. Among the total species of birds discovered, the top candidate species based on abundance were the Asian Glossy Starling (*Aplonis panayensis*), Eurasian Tree Sparrow (*Passar montanus*), Yellow-Vented Bulbul (*Pycnonotus goiavier*), Olive Backed Subird (*Cinnyris jugularis*) and Rock Pigeon (*Columba livia*). Most species observed were commonly found in an urban setting. Using the Shannon and Simpson's biodiversity indices, the results exhibited favorable outcomes, with Simpson's index scores of 0.838 and 0.856 from DMSFI and Insular Village Phase I, respectively. This led to the conclusion that the urban green space allocations for both study sites did harbor avian biodiversity. This further suggests that the biodiverse population of birds served as an indication of a successful preservation and sustainability of an all-inclusive biodiverse ecosystem found within the urban setting.

Keywords: *biodiversity, urban area, birds, avian diversity, Davao City*

The Ups and Downs of Student Nurses in the Clinical Area: A Phenomenological Study

Coc-Ong, C. V., Gonzales, V. P., Villamor, M. F., Bohost, E. S, and Sunga, N. C.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

Being a nursing student is no easy task. They are given many requirements, assignments, quizzes, and exams. On top of those, they are also on duty in their clinical rotations. This qualitative phenomenological research explored the lived experiences of nursing students in dealing with their stress in the clinical area. Ten (10) participants who were third and fourth year students of Davao Medical School Foundation, Inc. were purposively chosen. In-depth interviews were used to draw out the data. Themes were arrived using thematic analysis namely: The Spice's, Stressors as Wrecker of Health, You Create Your Own Calm, Smile, Breathe and Go Slowly; and No Struggle, No progress. Reasons like insufficient knowledge and hands-on experience, lack of self-confidence, handling difficult patients and watchers, unpredictable environment and poor time management were considered stressors by the nursing students in the clinical area. As a result of stress, students experienced psychological and physical manifestations such as burnout, fatigue, anxiety, ideas of giving up, doubting of one's capability, gaining of weight, and acne breakouts. In coping, there were variations of coping strategies identified by the nursing students both healthy and unhealthy to help them reboot themselves and to stay focused on their goals. Realizations come at the end, where nursing students recognized that in nursing, success comes with struggles and difficulties.

Keywords: *Social Science, Student Nurses, Clinical Rotation, Phenomenology, Davao City*

Factors Affecting Health Outcomes Among the Adults with Type II Diabetes Mellitus in Davao City

Albaño, C. J., Dagami, A. D. A, Escobidal, A. C. and Macaraeg, C. M.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

Type II Diabetes Mellitus is known as a long-term medical condition that accounts 55% of Filipinos in Davao City. The objective of this research study was to identify the factors that contribute to the effect of health outcomes among adults associated with Type II Diabetes Mellitus. Some of the known environmental factors were sedentary lifestyle, diet, and medication adherence. The approach of this quantitative descriptive-predictive research design was to determine the difference between the previous and latest hemoglobin A1c result (HbA1c) on their health outcomes, and to identify the predictors. Interval of HbA1c results were at least every three months upon comparison. This research study is based on 210 eligible respondents. According to the results in this study, it was found that the number of cigarettes a day, sex, gender, and medication adherence were predictors of HbA1c as it appears to be statistically significant. Hence, on that three month period, it made an impact on the health outcomes of the respondents as most of them take their medications religiously. In contrast to that, though most of the respondents do not smoke, however, those who consumes a cigarette on a daily basis would put their health at higher risk. Health promotion is the key to this matter because little change and adjustment of their behavior could make a moderate improvement on their health and prevent them from any complications.

Keywords: *Factors, Health outcomes, Type II Diabetes Mellitus, Davao City*

Beliefs and Opinions on the Use of Complementary and Alternative Medicine (CAM) Among Adults with Cancer

Balili, A. M., Crossland, B. M. B., Sunga, D. C., and De Leon, J. P. C.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2019

Complementary and Alternative Medicine (CAM) is a group of different medical and healthcare systems, therapies, and products that are not usually considered part of the conventional medicine. The usage of CAM has become more common in our country today. However, despite this increasing trend, medical practitioners have not yet proven if this can cure the disease. The widespread popularity of CAM and dietary supplements has brought attention to the existence of both a knowledge and a communication gap for health care professionals with respect to being able to properly counsel patients about these treatments. This study presented the beliefs and opinions on the use of CAM among adults with cancer. This qualitative study used a narrative research design, which approaches and relies on the written or spoken words or visual representation of individuals. The researches made use of in-depth interview with the use of guided questions to collect the data for the study which conducted at Biological Homeopathic Medical Corporation (BHMC), Davao branch. The results showed that the majority of the participants who used CAM claimed positive beliefs and opinions towards the use of CAM. This study also showed that there was an even more need for teaching about the CAM across all health care practices. These findings showed the potential influence workers can have in the scope of integrative medicine through their holistic views of participants and their skill to guide other health care professionals through promotion of patient health and contentment.

Keywords: *Beliefs and Opinions, Complementary and Alternative Medicine (CAM), Adults with Cancer, Davao City, Philippines, Southeast Asia*

Knowledge, Attitude, and Actual Preparedness Among Student Nurses During Emergency and Disaster Crisis in the Selected Nursing School in Davao City

Eria, P. C., Asis, K. F. B., Caingles, J. IV E., Goc-ong, A. O., Ibañez, I., and Lañada, D. R.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

Preparedness during emergency and disaster is vital, especially in countries, such as the Philippines, that experience different calamities all throughout the year. Thus, this study was conducted to determine emergency and disaster preparedness among the student nurses in the selected nursing school in Davao City. This research study used a quantitative correlational design to determine if there was a correlation between knowledge and actual preparedness among student nurses, and attitude and actual preparedness among student nurses during emergency and disaster crises. The participants in this study were 114 student nurses, currently enrolled in the selected medical school, who were scheduled for an online survey. Regarding emergency and disaster crisis, student nurses had an overall mean score of 3.60 and a standard deviation of 0.60, indicating that the level of knowledge was high and evident; an overall mean of 4.24 with a standard deviation of 0.44, showed an agreeable response to disaster preparedness was very high and was very evident; an overall mean score of 3.24 and a standard deviation of 0.59, indicating that the level of actual preparedness was fairly high and sometimes evident. There was a significant relationship between knowledge and actual preparedness, as well as a significant relationship between attitude and actual preparedness, of student nurses during emergency and disaster crisis. The respondents had a high level of knowledge and attitude during emergency and disaster crises and were rated to have a fairly high level of actual preparedness. With this, it is suggested that management should be adequately prepared when a disaster occurs, and that disaster plans need to be regularly updated.

Keywords: *Knowledge, Attitude, Actual Preparedness, Student Nurses, Emergency, Disaster Crisis, Davao City, Philippines*

The Influence of Social Media on Student Nurses' Psychological Well-Being

Alocada, T. M. D., Balbido, M. G. R., Castillo, C. A. U., Legarte, J. P. B., and Pimentel, J. M. R.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

Impacts of utilizing social media have been appeared to be far-reaching and conceivably hurtful in affecting youthful people's prosperity and mental behavior, which are not however experienced sufficient to distinguish between creative energy and reality. The increment of the utilization of social media around the world enormously influences the mental well-being of the youth. Youth social well-being has to be the subject of common intrigued and logical consideration. Although online connectivity depends on the kind of contact and use, there is a need for further studies to examine what various kinds of Internet platforms are doing for psychological health. Descriptive-correlation design was utilized among 162 student nurses at the Davao Medical School Foundation who were selected through complete enumeration. Ryff Scale on Psychological well-being 54 item questionnaire was used to determine the correlation between Social media usage and the psychological well-being of the student nurses. For student nurses, Facebook tops the usage at 5 hours or more, comprising 29.6%. The level of psychological well-being of the student nurses has an overall mean of 3.92 (0.68). The highest indicator is autonomy with a mean score of 3.96 (0.69), which is rated occasionally. The second highest indicator is self-acceptance with a mean score of 3.93 (0.66), which is rated occasionally. The lowest indicator is positive relations with others with a mean score of 3.87 (0.68), which is rated occasionally. The study examined the influence of social media to the student nurses' psychological well-being for the academic year 2020 to 2021 as bases for a proposed recommendation. Most of the student nurses spend the most time on Facebook, consuming five hours or more followed by Youtube and TikTok, while WhatsApp and Tumblr are the applications being used the least. Overall, the psychological well-being of the student nurses in terms of autonomy, self-acceptance, and positive relations with others is manifested occasionally.

Keywords: *social media influence, nursing students, health*

College Students' Experiences and their Coping Mechanisms During the COVID-19 Pandemic

Ambolodto, B. R. J. S., Colina, T. M. G., Dy, R. G., Jumao-as, D. B., and Poderanan, T. A.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

Experiences are events that someone has actually done or lived through. Coping mechanism is a conscious strategy used by people in dealing with stressful events or trauma to aid them in managing difficult and painful emotions. With the spread of the COVID-19 worldwide and declared by the World Health Organization (WHO) as a pandemic, the Philippines has declared a public health emergency resulting in suspension of classes in all levels indefinitely resulting in private and public schools shifting to online learning. Thus, this study was conducted to explore the coping mechanisms of college students by identifying the participants' experiences during this pandemic. The results would lead to the implementation of interventions that would aid in the enhancement of learning and improvement of the college students' overall well-being. This study is a qualitative phenomenological research design. All of the participants were recruited using the snowball method. The participants in this study were 10 college students from three colleges in Davao City currently enrolled for the academic year 2020 to 2021 and were interviewed using in-depth semi structured interviews made possible through online due to the pandemic. Thematic analysis and codifications were used to analyze the data. The study yielded a total of 151 significant statements, 25 categories and 10 themes. Various experiences were determined through exploration and the researchers have identified two types of coping mechanisms which are generally adaptive coping mechanisms which is a healthy way of managing stress. However, to further enhance their learning and improve their overall well-being, the study concluded that interventions and support must be implemented.

Keywords: *Experiences, Coping mechanism, College students, COVID-19 pandemic, Stressors, Virtual learning, Problem-focused coping mechanism, Emotion-focused coping mechanism, Adaptive coping mechanism, Davao City, Philippines*

Student Nurses' Perspectives on the Application of Nursing Concepts and Theories to the Clinical Practice

Silva, I. P., Flores, Z., Nazareno, N., Rodriguez, C. F., and Samiana, R. L.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

Student nurses go on rotation in the clinical setting as soon as they reach a particular year level. They do this to enhance their skills in applying the nursing theories and concepts in the clinical setting, but some of the student nurses have difficulty doing so. This study was conducted to highlight the importance of both theories and concepts in the nursing profession. The study used a qualitative type to explore the experiences and perspective of student nurses about the application of theories and concepts in the clinical practice. The participants in this research study are six (6) male and six (6) female student nurses who are currently enrolled in Davao Medical School Foundation Inc., College of Nursing for A.Y. 2020-2021 and already with exposure to the clinical settings. All participants were recruited using the snowball method and they all took part in an in-depth interview. Data were analyzed through codification and thematic analysis. The result of the study yielded eight (8) themes with fifty-two (52) significant statements and sixteen (16) categories. The themes consisted of: The Gap is real struggle is here, Light Bulb Movement, Planting Flowers, Walk in the dark, Lion Wrestle, Cracking Code, Back to basics, and Innovation from recognition. The challenges such as outdated resources, limited time of exposure and lack of ways of learning were found to be a common trend that were identified. The study concluded that there is a need for update in the ways of teaching and learning and to innovate resources. Theory Practice Gap can be minimized, there is just needed to implement changes to overcome it.

Keywords: *Theory-Practice Gap, Phenomenological, Student Nurses, Davao City*

Student Nurses' Perceptions on Technological Device Utilization and its Effect on their Physical Well-Being in a Selected Nursing School in Davao City

Marfil, E. T. A., Cooper, B. B., Lagahit, C. J. A., Nitorreda, M. R. D., and Salas, G-R. M.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

Technology has become central to life and has become a tool to provide information and accomplish various tasks. It has been beneficial for healthcare workers, teachers, and especially students. The dependence on technology has also led to heavy use, resulting in harmful effects on an individual's health. The objective of this study was to examine the student nurses' perceptions on technological device utilization and its effects on the physical well-being of the academic year of 2020 to 2021. This study utilized a quantitative research design, specifically a descriptive-correlation research design. This design was used to statistically measure and analyze the relationship of student nurses' physical well-being to technology device utilization and individual perception. A total of 114 nursing students from DMSFI met the criteria and were chosen for this study. Most of students who have cellular phones and laptops spent nine to 12 hours each day on their devices. The results showed no relationship between technology usage and the physical well-being of the student nurses. However, there was a significant relationship between physical well-being and perceived susceptibility, perceived severity, and perceived benefits. Based on the findings, this study concluded that excessive use of technology was linked to adverse effects on the students' physical well-being. Adjusted screen time, eating three meals a day, and sleeping eight hours a night can benefit students and positively affect their physical well-being.

Keywords: *Technology Utilization, Technological Device, Physical Well-Being, Individual Perception, Student Nurses, Correlational Research Design, Davao City, Philippines*

Student Nurses' Experiences and their Adaption Mechanism Towards Online Education During COVID-19 Crisis

Angca, J. P. B., Cayudong, J. J. V., Ranain, A. A. P., Ruga, U. M., and Tabat, S. R.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

Online education has become the panacea to the educational problem during the current time of the COVID-19 pandemic (Dhawan, 2020). However, aspects like experiences and adaptation mechanisms of students towards online learning have not been discussed widely due to the lack of time to respond to the pandemic's changing phase and its effect on the population. The study was conducted to explore common challenges of college students towards online education and how they adapted in one of the hardest times in the 21st century. It used a Phenomenological approach to provide a deeper understanding of the students' experiences and adaptation mechanisms. The participants chosen in this study were three males and three females currently enrolled in the nursing department in Davao Medical School Foundation, Inc. Through a purposive sampling method, participants were selected based on the inclusion and exclusion criteria. Data analysis was done by the use of Coding and Thematic Analysis. In this study, 49 significant statements were yielded with 11 major themes, namely: Peaks and Valleys, A mountain climb, Advantages and drawbacks, Managing own learning, Out of one's element, Better than nothing, Towards the goal, Support system, Go with the tide, Coping and Suggestions from the student nurses. The study's findings showed that students became less motivated to put up more effort to attend classes, listen to discussions, and submit requirements due to the over availability of the information online and the change in learning setting. Hence, acknowledging the students' difficulties and challenges is a must to improve learning and provide a high-quality education despite the pandemic.

Keywords: *Experiences and Adaptation Mechanism, COVID-19 Crisis, Online Education, Student Nurses*

College Students' Experiences on the Learning Management System During COVID-19 Pandemic: A Phenomenological Study

Cordero, M. A. P., Amion, D. M. H., Navares, Y. K. O., Onandia, L. G. D., and San Jose, K. L. C.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

The Learning Management System (LMS) is a software used as a platform via the internet for educational institutions to conduct their lessons, quizzes and exams online. Due to the occurrence of the COVID-19 pandemic in 2020, schools around the globe closed their campuses and shifted from a face-to-face method to online classes using the LMS in order to protect their students from COVID-19 and at the same time, continue their education. This study presented the college students experiences in using the LMS during the COVID-19 pandemic. This study utilized a phenomenological research design wherein selected college students from Davao City shared their lived experiences during a certain phenomenon, the COVID-19 pandemic. This study utilized validated guided questionnaires for the data collection through semi-structured interviews of 10 participants via video conference calls using Google Meet. Results showed that there were nine emergent themes and 18 cluster themes generated during the data analysis. After a thorough analysis and discussion of the gathered data, the researchers implicated that there were three factors that affected the college students' experiences on LMS during the COVID-19 pandemic. The factors were the internet connection, lack of knowledge about LMS and difficulty to adopt the traditional classroom setting to online class. The researchers concluded that having a better insight about the experiences of college students on the LMS can be a stepping stone for educational institutions, educators, and also the students to an improved learning experience during the utilization of LMS.

Keywords: *College Student, Experiences, Learning Management System (LMS), COVID-19, Phenomenological Study, Davao City, Philippines*

Views and Insights on Safe Sex Among College Students in Davao City

Rawlins, C. M., Baguadatu, M. R. G., Bartolome, G. G. P., Boiser, K. G.S., Dumrigue, J. L. B., and Perez, C. C.

COLLEGE OF ARTS AND HEALTH SCIENCES | 2020

Sex, teenage pregnancy, sexually transmitted infections (STI), and Human immunodeficiency virus/Acquired immunodeficiency syndrome (HIV/AIDS) topics are still taboos in Filipino homes. However, cases of STIs are increasing worldwide and as well as in the Philippines. The study was conducted to highlight the importance of safe sex education programs and assist in further improvement in its implementation in the community. This study used a qualitative type to determine college students' views and insights about safe sex, specifically the narrative research design. The participants in this study were five male and five female participants currently enrolled in a college in Davao City. All participants were recruited using the snowball method, and they all took part in an in-depth interview. The analysis of data was done through codification and thematic analysis. The results of the study found 80 significant statements and yielded eight major themes. The themes consisted of No Glove, No Love, Every Misconception is a Poison, Think Before You Play, You Cannot Be Serious, Safety First, Risk is Not Knowing, How Ready Are They, and Spread Information Not Disease. Risk factors such as not wearing a condom were found to be a common trend identified as well as engaging in sexual activity with multiple partners. To improve further implementation, the study concluded a need to reinforce programs to promote information and knowledge about safe sex practices.

Keywords: *Views and Insights, Sexually Transmitted Infections (STIs), Safe Sex Practice, College Students, Narrative Research, Davao City, Philippines*

Perspectives of Barangay Health Workers (BHWs) on their Roles, Enablers, and Challenger on Maternal, Newborn, Child Health, and Nutrition

Migallos¹, S. F., Alvarez², A. G., Guitguten², G. E., Floresca², L. G., Acuña³, M. C. S., Lupase³, V. T., Pangan³, N. C., Baleña¹, S. B. L., Domanais¹, T. S., Galendez¹, N. L., Pasia¹, J. S., Manalysay², P. V., and Fuentes^{1,3}, N. B. A.

¹San Pedro College, ²Ateneo de Davao University, ³Davao Medical School Foundation, Inc.

FACULTY RESEARCH | 2019

Community Health Workers, referred to as Barangay Health Workers (BHWs) in this research, play a critical role in mobilizing communities to take care of their health and provide primary healthcare at the community level. Concerned with the high maternal and infant mortality in Davao Region, this exploratory qualitative study aimed to describe the perspectives of Barangay Health Workers (BHWs) on their roles, enablers, challenges toward maternal, newborn, child health and nutrition. Using purposive sampling, 47 BHWs from the adopted communities of the collaborating schools in the districts of Crossing Bayabas, Toril, Balete, Marilog, and Talandang, Tugbok, Davao City, and two rural communities New Corella, Davao del Norte, and Malita, Davao Occidental representing the municipalities with a high incidence of maternal and newborn death participated in the in-depth interviews and focus group discussions. Participants are 20 years old and above with at least one year of experience as barangay health workers. Using Collaizzi's method, four themes emerged from a total 1250 significant statements, 550 formulated meanings, and 70 clustered themes. These themes are eyes, ears, hands and heart of primary healthcare providers, advocates and navigators of the healthcare delivery system, undaunted sailors on the waves of adversities, and instruments of infinite hope. Based on the findings, it is implied that BHS's think they have less financial support and feel they are less appreciated; BHW's role in the success of the government's community-based health programs is not given due importance and recognition; BHWs are the missing link to complete the workforce needed to ensure the success of the implementation of the Universal Health Care Law; Republic Act 7883 of 1995, otherwise known as the BHWs' Benefits and Incentives Act is not fully implemented and disseminated as they are not aware of their benefits and incentives as stipulated in the act.

Keywords: *Primary Health Care, Community Health, Maternal, Newborn, Child Health and Nutrition, Barangay Health Workers, Davao Region*

Developing an Animal Feed Management System in the DMSFI Animal House

Otero, M. C. B., Gloriano-Hong, A. S., and Vandenbroeck, B. W. J.

College of Medicine Research Center, Davao Medical School Foundation, Inc.

STAFF RESEARCH | 2019

In vivo studies are indispensable in drug discovery and development, and errors in laboratory animal studies can mislead succeeding experiments. For a fledgling Animal House that is internally validating its procedures, laboratory managers must periodically assess the operations and institute changes, as guided by existing and applicable national and international standards. One commonly overlooked, yet crucial aspect of *in vivo* studies is laboratory animal diet, and this affects research outcomes. In this action research, the current animal feed management practices in the DMSFI Animal House was evaluated. Records were reviewed, and practices of current users of the Animal House were documented. Preliminary results showed that animal feeds used were commonly closed type chows procured from pet shops, regardless of the outcome being investigated. A brand of hog feed was also fed *ad libitum* to rabbits and rats. No purified feeds were used. Feed expiry date was not indicated in the repacked chows. Feeds were also stored in the same manner as general supplies. A review of selected studies to check for the effect of feed handling and storage on their target measures are still underway. Thus, animal feeds should be chosen based on the goals of an *in vivo* study. For recurring topics, the Animal House shall provide and control the use of feeds, especially the purified feeds. Adequate feed storage infrastructure must also be available.

Keywords: *animal study, feed management, in vivo, DMSFI*

RP-HPLC Method Development and Validation for Identification of Quercetin from Various Sources

Ofima, L. J. T. and Otero, M. C. B.

College of Medicine Research Center, Davao Medical School Foundation, Inc.

STAFF RESEARCH | 2019

Validation of analytical methods used in drug discovery and development is compulsory to generate reproducible results that are accurate and precise. By studying the limitations and applications of a specific analytical method and the machine, an analyst can make informed decisions on the reliability of results for various test samples. In this study, a reverse phase high performance liquid chromatography (RP-HPLC) method was developed and internally validated for detection and separation of quercetin from extracts of onion (*Allium cepa* L.), green tea, and quercetin food supplement. Quercetin belongs to a class of polyphenolic compound from plants, called flavonoids, which are studied for their antioxidant and anti-inflammatory effects. RP-HPLC analysis was performed in a Shimadzu Prominence Semi-Preparative HPLC system by isocratic elution with a flow rate of 1.0 mL/min with sample injection volume of 20 μ L. Mobile phase used were Methanol and 0.1 % Ortho-phosphoric acid with a solvent ratio of 70:30 (v/v). Detection was identified at 370 nm. The separation was performed at 40 C using a C₁₈ column Inertsil ODS-3 (4.6 x 150 mm, 5 μ m). The content of quercetin in onion, green tea, and food supplement was identified at 12.9 min. Linearity for the developed method was found over the concentration range 5-60 μ g/ml with a correlation coefficient of 0.998. Recovery of the flavonoid quercetin ranged between 50 to 100% sample. The validated RP-HPLC method for the analysis of quercetin was found to be simple, efficient, and reliable for identifying quercetin in onion, green tea, and food supplements. Further validations must be done for analyzing quercetin from other samples.

Keywords: *HPLC, method development and validation, quercetin, drug development, DMSFI*

Control Strategies Against COVID-19 in a Highly Urbanized City in Mindanao, Philippines

Otero, M. C. B.^{1,2}, Gadgude, E. G. J.², Murao, L. A. E.³, and Baja, E. S.^{1,4}

¹College of Medicine, University of the Philippines Manila, ²Davao Medical School Foundation, Inc., ³University of the Philippines Mindanao, ⁴Institute of Clinical Epidemiology, National Institutes of Health, University of the Philippines Manila

STAFF RESEARCH | 2020

Since the declaration of the COVID-19 pandemic in March 2020, there are only 1,371 (0.63% of national tally) confirmed cases in Davao City, the third-largest highly urbanized city (HUC) in the Philippines in the second largest island group, Mindanao. In this study, we present the control strategies and best practices implemented by the local government of Davao City to control the spread of COVID-19. Local and national legislation, executive orders, recommendations of the Interagency Task Force (IATF), and the National Task Force (NTF) for COVID-19 and official news articles were reviewed. General Community Quarantine in Davao City was declared in March, two weeks into the State of Public Health Emergency. Local and targeted lockdowns, suspension of commercial flights, and provincial public land transport, curfew, strict physical distancing, mask-wearing, and hand hygiene, expanded qPCR testing, and aggressive contact tracing were enforced. Innovations by the City Government and the City Task Force of COVID-19 also ramped up the campaign against COVID-19. These strategies include the use of Food and Medicine (FM) Pass with coding scheme and clustering of barangays, activation of only one (1) COVID-19 Referral Hospital until its capacity is exceeded, and operation of 11 isolation facilities. A City Ordinance imposing fines for people without a mask was signed in July, and the use of face shield was required in public places and transport. Free flu vaccination was also given to senior citizens starting August 13. There are 2 COVID-19 Testing Laboratories in the City accredited by the Department of Health, with a cumulative testing capacity of 500 tests daily. Samples for testing come from all over Davao Region and neighboring regions without COVID-19 testing capability. A wastewater-based COVID-19 surveillance system in selected barangays in Davao City is currently being validated by the academe to complement the expanded qPCR testing of cases and at-risk persons, and contact tracing. Mathematical modeling predicts a worst-case scenario of 2,500 cases by the end of September 2020 in Davao City. But with the continued innovations of Davao City and compliance of its citizens, COVID-19 appears to be under control even as cases continue to rise.

Keywords: *COVID-19, control strategies, urbanized city*



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Davao Medical School Foundation, Inc. (DMSFI)
Dr. A Gahol Street, Bajada, Davao City, Philippines 8000

 dmsfresearch@email.dmsf.edu.ph

 +6382 298-6544 | +6382 226-2344