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Calophyllum canum: Antibacterial and Anticancer Plant

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Human have used plants as a source of medicine throughout the world since time immemorial. Today there are at least 120 distinct chemical substances derived from plants that are considered as important drugs currently in use in one or more countries in the world. In particular, 60% drugs currently in clinical use for treatment of cancer were found to be of natural origin. *Calophyllum canum* is a large tree which grows in South East Asia and which is popular for its timber. This plant belongs to the family Guttiferae; a family that boasts species which are rich in bioactive phytochemicals. Some species are believed to having medicinal values and are used against several diseases including anti-inflammatory, anti infectious, astringent and antipyretic. We have successfully isolated two compounds from the methanol extract of *Calophyllum canum* stembarks that active inhibit the growth of *Staphylococcus aureus* (ATCC 29213 and ATCC 25923). The cytotoxic study on the extracts revealed that the n-hexane extract had the strongest antiproliferation activity, followed by the methanol extract. n-hexane strongly inhibited the growth of TE1 and MCF7 cell lines. IC50 for n-hexane and methanol extract activity on the A549 cell line was found to be 27.96 µg/mL and 78.9 µg/mL respectively. The compounds (CE0 - CE5) isolated from ethyl acetate extract of *C. canum* are active to inhibit cell proliferation of human cervix adenocarcinoma cells.

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Production of Autologous Platelet-Rich Plasma from an Animal Model

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There has been recent interest regarding the role of autologous platelet-rich plasma (PRP) on soft and hard tissue healing. Inactivated platelets contain various growth hormones that involve in tissue healing such as platelet-derived growth hormone (PDGF), vascular endothelial growth hormone (VEGF), transforming growth factor-β (TGF-β), epidermal growth factor (EGF) and insulin-like growth factor (IGF). Upon activation, platelets release these hormones from its α-granule. PRP concentration of three to five-fold the baseline level or the count above 1,000,000/ml was shown the ability to promote tissue healing. Even though the protocol for the production of PRP from a large amount of blood has been established in human, the method could not be adopted in animal studies, which require small amount of blood. Lack of method's standardization in PRP preparation has also contributed to the difficulty of getting sufficient PRP for experimental studies. Here, we presented a double-centrifugation technique for the production of autologous PRP from rabbit's blood.

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Posterolateral Lumbar Spinal Fusion in the New Zealand White Rabbit Model: Surgical Techniques

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New Zealand white rabbit posterolateral lumbar fusion model is being used extensively for the efficacy study of bone graft substitutes. The morbidity, mortality and waste of animal during or following the surgical procedures were reported as high as 20%. Familiarization to the surgical technique is crucial to reduce the complications. The aim of this study was to illustrate surgical procedure in posterolateral lumbar spinal fusion in the New Zealand white rabbit model via a lateral approach. The technique was a

modification from the technique by Boden et al. (1995). We performed intertransverse lumbar fusion at L5 and L6 via lateral approach by retracting the paraspinal muscles medially to expose the transverse processes and intertransverse membrane instead of exposing the transverse processes through the intermuscular plane. We found that the tips of transverse processes were easily felt from the lateral border of paraspinal muscles and served as anatomical landmark to locate the intended level of fusion. This method also showed good exposure of the transverse processes with less bleeding observed. No death due to surgical complication was observed out of 30 rabbits operated. An easier and safer method for performing spine surgery was demonstrated and is recommended for future posterolateral lumbar fusion surgery on New Zealand White rabbits.

P-100 Bone Formation at Posterolateral Intertransverse Lumbar Fusion

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This study aimed to compare bone formation in posterolateral lumbar fusion after implantation with hydroxyapatite (HA) granules alone, HA granules mixed with autologous platelet rich plasma (HA-PRP) and autograft. Twenty-four New Zealand white rabbits were used. The rabbits were randomized into two groups of twelve rabbits each based on the graft materials used. All the rabbits underwent single level bilateral posterolateral intertransverse lumbar fusion between L5 and L6 segment of lumbar spines. One side of the animals was implanted with either HA alone or HA mixed with PRP. While the contra lateral side was implanted with autograft, and served as the control. The animals were sacrificed after six weeks post-implantation for undecalcified histological and radiological assessments. Results showed that the control group with autograft healed with a good fusion mass. Interestingly, HA granules only group healed with better bone formation than HA-PRP.

P-107 Human Pathogenic Bacteria In Sea Fish - Siakap (SEA PERCH, *Lates calcarifer*) and Ikan Merah (RED SNAPPER, *Lutjanus sanguineus*)

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The presence of fish spoilage and human pathogenic bacteria in ice-chilled and spoiled Siakap (Sea perch *Lates calcarifer*) and ikan merah (Red snapper, *Lutjanus sanguineus*) were studied. Microbiological analysis was performed and the isolated bacteria were identified up to the species level by using API 20 E identification system. The study portrays that *Vibrio fluvialis*, *Proteus mirabilis*, *Proteus vulgaris*, *Brucella* sp. and *Ochrabactrum anthropi* were the human pathogenic bacteria found in sea perch while *Vibrio fluvialis*, *Proteus mirabilis* and *Proteus vulgaris* were detected in red snapper. In this study, *Vivrio fluvialis* was the fish spoilage bacteria found in both fishes while *Shewanella putrefaciens* was detected specifically in sea perch and *Photobacterium damsala* was detected in red snapper. In fact poor hygienic of fish handling practices and improper fish storage conditions have been observed to be the potential contamination sources of these bacteria. The present findings might be instrumental to aid both the food safety regulatory bodies and the Hazard Analysis Critical Control Point System in setting up new standards and guidelines for the awareness on post harvest fish handling practices in the public fish market and sea food restaurants.