

International Conference and Expo on **Drug Discovery & Designing**

August 11-13, 2015 Frankfurt, Germany

Small tri-peptide plays a leading role in promote bone marrow stem cell differentiation into islet-like insulin positive cells

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Destruction of islet β -cell results in hyperglycemia in diabetes. Replacement of β -cell may offer a long term solution. Adult bone marrow stem cells (BMSC) may be programmed with specific factors to induce differentiation. Histone deacetylase (HDAC) inhibitor trichostatin A (TSA) and differentiation agent (-)-indolactam V (ILV) has been reported to convert human BMSC into functional β -cell. In addition, Thyrotropin Release Hormone (TRH), a Neuropeptide, has been implicated to initiate β -cell differentiation in the embryonic pancreas. We hypothesize that a cocktail containing HDAC, TSA, ILV, and TRH has the ability to induce BMSC into functioning insulin producing cells. In this presentation, we will briefly introduce biological effects of TRH and utilizing RIP-Cre cellular labeling technology along with stem cell biology to test TRH and TSA convert BMSC cells into insulin positive cells in vitro. Reprogramming BMSC into insulin positive cells with a cocktail of small molecules creates a new protocol for generating human insulin positive cells. However, future studies on the control of differentiation and possible teratoma formation needs to be performed to assess safety clinically.

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Determination of the antioxidant and cytotoxic activities of the leaves of artocarpus odoratissimusblanco (Moraceae)

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Currently, there is a global trend of shifting to the use and research of natural resources for anticancer and antioxidant agents, because of availability, cost and efficiency. However, in the Philippines, only a few studies were conducted on these sources.

Artocarpus species (Fam. Moraceae), due to the presence of bioactive compounds, have been recently studied for various pharmacological activities. Prenylated flavones and flavonoids are found to contribute to its potential as chemotherapeutic agents. Also, antioxidant compounds reduce free radicals, which may also lead to the cytotoxic properties of such compounds. Artocarpus odoratissimus Blanco (Marang) a member of this family, have been studied for phytochemical contents, antioxidant property, polyphenol diversity and cytotoxic properties, which show its anticancer potential. But, most studies are limited only to the fruit. Also, there are only few, if not none, which studies on the leaves. Thus, leaves of A. odoratissimus were chosen to be studied.

This study aims to characterize the leaves of A. odoratissimus leaves in terms of its physical properties and bioactivity. Specifically, it aims to test for the cytotoxic and antioxidant properties, to determine its moisture content, total ash content and total extractives through pharmacopeia/ assays, to obtain the crude alkaloid extract via the Stas-Otto procedure, and to characterize the crude alkaloid extract in terms of its solubility and boiling point. The crude extract showed antioxidant activities for both OPPH and CUPRAC assays. For both assays, results are significantly less than that of the standard ($p < 0.05$). Also, crude extract showed cytotoxic activity for the brine shrimp lethality assay having LC50 of 1.08 mg/mL. The crude alkaloid mixture obtained was characterized, however, it contains traces of pigment and was not further purified.

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