Contribution ID: **130** Type: **Poster**

A Controlled Release Formulation of Medicinal Plant Extract Decrease Inflammation in Human Vascular Endothelial Cells: A Preliminary for Diabetic Adjunctive Treatment

Currently, 230 million people worldwide have been affected by diabetes and approximately 366 million people are expected to get diabetes by 2030. Diabetes mellitus is a disease characterized by altered glucose homeostasis, persistent hyperglycemia, chronic inflammation of circulatory system, leading to many complications. The injurious effects of hyperglycemia are separated into macrovascular complications (coronary artery disease, peripheral arterial disease, and stroke) and microvascular complications (diabetic nephropathy, neuropathy, and retinopathy). Previous study revealed that medicinal extracts from Amla, goji berry, and raspberry contain high antioxidant potency which are beneficial to cardiovascular system and lipid profiles. In this study, a time release formulation of amla extract, goji berry extract and raspberry powder was developed. The sustained release performance of the beads was investigated by measuring their disintegration and dissolution properties. In a pH=1 aqueous solution the beads developed a protective gel within one hour, maintain their integrity for more than ten hours; the beads, however, had completely disintegrated by the eleventh hour. In deionized water (pH=7), a thick gel formed and persisted for an entire eleven-hour period at the end of which time the beads were still visible. In the inflammation model of human vascular endothelial cells, this formulation significantly decreased inflammation markers, as well as reactive oxygen species. These findings suggest the potential use of this medicinal formulation for treatment and prevention of microvascular complication in diabetic mellitus.

Authors: Dr SEREEMASPUN, Amornpun (Nanobiomedicine Laboratory, Faculty of Medicine, Chulalongkorn University, Rama 4 road, Patumwan district, Bangkok, Thailand); Dr KHOWNIUM, Kriangsak (Excellent Center for Drug Discovery Faculty of Science, Mahidol University 272 Rama VI Rd., Ratchathewi, Bangkok 10400, THAILAND)

Co-author: Dr ROMSAIYUD, Jariya (Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Ramkhamhaeng University, Bangkok 10240, Thailand)

Presenter: Dr SEREEMASPUN, Amornpun (Nanobiomedicine Laboratory, Faculty of Medicine, Chulalongkorn University, Rama 4 road, Patumwan district, Bangkok, Thailand)

Track Classification: Nano-medicine & biotechnology