OP-15

Sri Lankan Studies Validating Antidiabetic Potential of Medicinal Plants

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Ethnobotanical studies of traditional herbal remedies used for diabetes mellitus around the world have identified more than 1,200 species of plants with hypoglycemic activity. In Sri Lanka, around 126 plants are used to treat diabetic patients. However, only a few of these plants have been scientifically validated. Objective of this presentation is to summarize the outcome of the Sri Lankan studies which validate the antidiabetic potential of medicinal plants. Data of antidiabetic plants on clinical/experimental trials were collected from literature sources such as PubMed, Science Direct, and Google Scholar, to identify studies conducted in Sri Lanka.

Plants that have been demonstrated of having antidiabetic potential were *Aegle marmelos, Alpinia calcarata, Artocarpus heterophyllus, Asteracanthus longifolia, Bambusa vulgaris, Camellia sinensis, Cassia fistula, Coccinia grandis, Ficus benghalensis, Gymnema lactiferum, Ipomoea aquatica, Momordica charantia, Momordica dioica, Osbeckia octandra, Phyllanthus debilis, Piper betel, Salacia reticulata, and Zingiber officinale.* Most studied plants were *Momordica charantia, Artocarpus heterophyllus, Salacia reticulata, Ipomoea aquatica* and *Asteracanthus longifolia.*

Majority of these studies were *in vivo* (96%) which were based on either normal or diabetes-induced rats (~ 74%), or studies based on humans (~ 22%) which were healthy/ maturity onset diabetes/ type 2 diabetes individuals. Only about 4% of the studies were based on *in-vitro* studies investigating at the mechanism of action. Plant materials have been used mostly in the form of aqueous decoctions. Other forms used were fresh juice/ethyl acetate extract/ methanol extract/ herbal tea/ shredded edible portion. Parameters used to analyse the antidiabetic potential were mainly fasting blood glucose and oral glucose tolerance. Other parameters used were post prandial blood glucose, liver and muscle glycogen, gluconeogenic capacity, plasma insulin, HbA1c and serum fructosamine.

Even though, worldwide, there are around 400 experimentally proven medicinal plants having antidiabetic properties, complete mechanism of action is available only for about 25% of the investigated plants. Therefore, even today great opportunities are open for scientific investigations of medicinal plants for cure of diabetes and its complications.