Activity - Guided Isolation & Characterization of Antidiabetic Compounds from *Alocasia indica* Schott.

INTRODUCTION

Diabetes mellitus is the commonest endocrine disorder that affects more than 100 million people worldwide (6% of the population). It is caused by the deficiency or ineffective production of insulin by pancreas which results in increase or decrease in concentrations of glucose in the blood. It is found to damage many of the body systems, particularly the blood vessels and nerves (Nagappa et al., 2003). For its therapy along with the synthetic drugs, many agents of the plant origin are also in use particularly for the treatment of non insulin dependent diabetes mellitus (NIDDM). Diabetes is epidemic underway. Due to sedentary habits, urbanization more people are suffering from diabetes. A decade later, the global burden of diabetes was estimated to be 135 million. Quantifying the prevalence of diabetes and the number of people affected by diabetes, now and in the future, the latest WHO estimate – for the number of people with diabetes, worldwide, in 2000 among adults ≥ 20 years of age was estimated to be ~ 171 million (Wild et al., 2004).

Over the centuries, Indian herbal drugs have served as a major source of medicines for the prevention and treatment of diseases including diabetes mellitus. Ethnobotany studies the complex relationships between plants and cultures. It is multidisciplinary science defined as the interaction between plants and people. The relationship between plants and human cultures is not limited to the use of plants for food, clothing and shelter but also includes their use for religious ceremonies, ornamentation and health care. To date hundreds of herbs and traditional medicine formulas have been reported to have been used for the treatment of diabetes mellitus. In past decade, research has been focused on scientific evaluation and justification of traditional drugs of plant origin and screening of more effective and safe antidiabetic potentials has continued to be an important area. In developing countries 80% of population are using traditional medicine in primary medical problems (Grover & Yadav, 2004).

Due to modernization of lifestyle, diabetes is becoming a major health problem in developing countries. Even in developed countries the mortality rate due to diabetes is more alarming. It’s a seventh leading cause of death in US. In India every fourth human being is diabetic or has a chance to become
diabetic. With increasing incidences of diabetes in rural population throughout the world there is a clear need of development of alternate strategies for diabetes therapy as the current therapies are providing to be inadequate to combat all metabolic aberrations of the disease. The high cost and poor availability of current therapies for many of the rural population in India requires the need for the development of indigenous, inexpensive, botanical sources for Antidiabetic crude or purified drugs. Herbal remedies are being used by almost 80% of the world population particularly in the developing countries for primary health care. The natural products shall be considered as the best in primary health care because of better cultural acceptability, safety, efficacy, potent, inexpensive, and lesser side effects. Several herbal medicines and supplements have been studied as a potential therapeutic agents in the management of diabetes and its related complications. Hundreds of plants have been studied for their potential blood glucose lowering properties. In recent years several developing countries have shown growing interest in alternative & complimentary system of medicine for management of diabetes. Several plant species have been used in traditional medicine to treat symptoms of diabetes since several hundred years. (Sharma & Arora 2006).

None of the presently available sulphonylurea completely normalize insulin secretion and action. A scientific investigation of traditional herbal remedies for diabetes may provide valuable leads for the development of alternate drugs and therapeutic strategies. The bioactive compounds and extracts need to be standardised on the basis of active principle along with fingerprint. This can be achieved by judicious and rationally designed interdisciplinary research programs. Cost efficient, potent and less or no side effects of drugs of plant origin haven achieved through compound formulations either in natural or semi processed form. The herbal remedies can act good adjuvant drug to reduce the requirement of insulin or sulphonylurea. The applications of novel isolation techniques and pharmacological testing procedures have made the new plant drugs to find their way into medicine as purified substances. (Pullaiah & Naidu, 2003).