PREFACE

Obesity is a serious health problem in industrialized countries and it has become prevalent in developed countries as a result of changes in lifestyle, especially in eating habits. Obesity is implicated in various diseases, including type II diabetes, hypertension, cancer and coronary heart diseases. Obesity is characterized at the cell biological level by an increase in the number and size of adipocytes differentiated from fibroblastic pre-adipocytes in adipose tissue. Adipose tissue is vital for maintaining whole body energy homeostasis and consists of adipocytes, which store TAG as a fuel for the body. Excessive adipose tissue deposition is attributed to an imbalance between energy intake and energy expenditure. The major health consequences of obesity are predictable given an understanding of the pathophysiology of increasing body fat. Therefore, prevention and treatment of obesity are relevant to health promotion.

Cure options today for obesity include diet therapy, increased physical activity, behavioral therapy, surgery and pharmacotherapy but, these are not successful. Even then there is a growing preference for anti-obese drugs but they are associated with several side effects like increased blood pressure, diarrhoea, dry mouth, constipation, headache and insomnia etc. Further the tendency of regaining weight is extremely likely when the drugs are discontinued.

So a search has been made to find out best alternative which is cost-effective, free from side effects and also enduring in its action. This search led to a critical evaluation of several species of plants described in Ayurveda. It was found that about 400 plants exist with anti-obese activity. Their active principles have been identified. Of these saponins of particular structure were identified with the desired anti-obese property.

But unfortunately one herb missed evaluation and remained unrecognized though it was established that this herb possessed saponins. So I have chosen to check whether saponins of this herb too possess antiobese property. This herb is Gymnema sylvestre which is found almost everywhere in India.
Out of the several causes that cause obesity I have chosen cafeteria and high fat diets to induce obesity in male wistar rats. Because the physiological aspects of these animals closely resemble humans the results can be reliably extrapolated. Four sets of parameters, the body weight parameters, lipid profiles, oxidative stress parameters and histopathology were used to notice the devastating effect of cafeteria and high fat diets, and the protective role of saponins of *G. sylvestre*. In this study the protective action of the standard drug orlistat (OL), a pancreatic lipase inhibitor is also compared with that of saponins of *G. sylvestre* and it was found that the saponins of this herb have an edge over the standard drug OL.