AIMS and OBJECTIVES
Review of literature reveals that arecoline, the major alkaloid of the betel nut, disturbs endocrine functions in animals. But the detailed mode of action of arecoline on the ultrastructure and hormonal profile of thyroid and adrenal glands are not well addressed. It is also known that stress modulates endocrine function, but there is dearth of information as to whether arecoline can modify endocrine status of the stressed individuals. Furthermore, in-depth studies on impact of arecoline administration on host’s defense mechanisms including anti-oxidant and detoxification system and hepatocyte ultrastructure as well as on mononuclear cells of spleen, which is the storage organ for circulatory T and B lymphocytes, are inadequate.

In the above perspective, the main objectives of this research proposal are to investigate:

1. Effects of arecoline on endocrine organs, such as, thyroid and adrenal at biochemical, ultrastructural and metabolic (carbohydrate) levels in albino mice.
2. Adrenal and thyroid responses with carbohydrate metabolism to arecoline treatment under diverse stresses in albino mice.
3. Impact of arecoline on thyroid and adrenal glands in experimentally-induced hyperglycemia and hypoglycemia in albino mice.
4. Action of arecoline on immune system, hepatotoxicity and antioxidant status in albino mice.