Rationale
And
Objectives
Higher prevalence of oral diseases including oral cancer is believed to be associated with tobacco and areca nut chewing prevalent in this part of the world. This depends upon duration, frequency of tobacco and areca nut chewing as well as host or genetic factors etc. Thus, there is a scope to study the cytogenetic alterations in the tissues of chewers, those having direct contact with chewing materials, which can also be used as biomarkers of effect. Thus studied the micronuclei frequency (Buccal Cytome Assay) in the buccal mucosa cells (target tissue) along with cytogenetic endpoints in peripheral blood lymphocytes of chewers and non-chewers. In addition, studied the chromosomal aberrations, Cytokinesis block micronucleus in the cultured peripheral blood lymphocytes and DNA damage by using the alkaline comet assay. The cotinine (metabolite of nicotine) level was measured in blood plasma while zinc and copper level was measured in the serum using atomic absorption spectrophotometer. Structural and numerical chromosomal abnormalities in blood cells was also investigated by labeling 17cen and the p53 locus by multicolour fluorescent in situ hybridization (FISH) that allows the efficient detection of 17p deletions leading to p53 allelic deletions, 17p gains and whole chromosome 17 numerical abnormalities.

The present study was carried out with the following objectives:

- To study oral cavity and the buccal mucosal changes using cytome assay.
- To study chromosomal aberration, blood cytome assay and DNA damage in the peripheral blood lymphocytes of chewers.

- Molecular cytogenetic changes in p53 Gene locus and 17cen by multicolour FISH in chewers.

- To measure the serum copper, zinc and the plasma cotinine level among chewers and non-chewers.

- To find out relationship if any between chewing habits with oral lesions, cytogenetic end points and copper, zinc level.

This study will provide the useful data to understand the role of areca nut and tobacco in the genesis of oral lesions and some of the parameters could be used as biomarkers. Further, data will also beneficial in creating awareness against the use of areca nut and tobacco as well as intervention programme such as information, education and communication about the ill effects of areca nut and tobacco chewing habits.