PREFACE

Peptic ulcer is a major gastrointestinal disorder in the world. Peptic ulcer is developed in the gastrointestinal tract due to mucosal cells exposed to acidic environment. For the development of both acute and chronic ulcer hyper secretion of gastric acid is the strongest factor for gastrointestinal erosion (Lam, 1984).

The common site of ulcer formation seen at lesser curvature of stomach it is called as gastric ulcer, sometime it occur at pyloric sphincter region or first part of small intestine it is said to be duodenal ulcer. Various ulcer induced animal model studies indicates that ulcer are occurred due to altered mechanism of both offensive and defensive factors. Das, 1993 investigated that ulcer occurred by the destruction of subcutaneous tissue linings. The gastrointestinal tract mucosal lining constantly involved in the secretion of mucus that form the barrier, protect the mucosal cells from self digestion from proteases and acids. The gastrointestinal tract mucosal cell surface not only provides area for food absorption but also they are involved in defensive mechanism (via secretion of mucus glycoprotein and bicarbonate) protect mucosa from harmful drugs chemicals substance and microorganisms. Such protective layer vanished during ulceration (Konturek and Konturek, 1995).

Number of the factors is responsible for development of ulcer such as age, hormones, stress, alcohol, NSAIDS, spicy diet, chemicals and *H. pylori* (Ramanathan, 2000). The free radicals has been implicated in pathogenesis of ulcer. Oxidative stress and aging both factors generates reactive oxygen species (ROS). Severity of ulcer formation were increased with advancing age. Prior to aging the mucosal defensive mechanism as well as immunological resistance response collapsed and animal easily susceptible to various disorder and diseases (Majumdar, 1997).

Various drugs are available for the treatment of peptic ulcer but some extent they not surely cure and recurrence ulcer. Synthetic drugs exhibited adverse effects on body and they alter the healthy status of body. Hence, now a days the
demand to plant derived medicines are increased in the most people’s not only due to its easy availability, distribution and low cost but also it is better for human health status. Herbal plant derived medicines shows little or negligible side effects as compared to the recently used synthetic drugs (Sing, et al., 2016). The treatment of ulcer with herbal plant mainly focused on lowers ulcerative stress and protect the body from side effects.

*Aloe vera* is medicinal plant belongs to *Asphodelaceae* (Liliaceae) family and it a shrubby or arboescent, perennial, xerophytic, succulent, plant. It is renowned because of its different biological activities (Radha and Laxmipriya, 2015). *Aloe vera* rich in many phytoconstituents (Reynolds, 1990) includes high amount of phenolic compounds, anthrquionone, polysaccharides, alkaloids, polyphenols, aloines (glycosides), aloe emodin, steroids and flavonoids. Glycosides and flavonoids acts as strong antioxidant agents (Tripathi and Shukla, 1995). Prabjone, et al., 2006 reported that *Aloe vera* showed antiulcer, antioxidant and antidiabetic activity (Rajsekaran, et al., 2004).

Different parameter has been used for nutritional assessment on peptic ulcer, aging and to evaluate antiulcerogenic effect of certain plant derived and synthetic drugs against gastro-duodenal ulcer. Some important parameters are used in this process, such as the anthropometric, biochemical, and clinical evaluations among them no individual parameter can provide total evaluation of antiulcerogenic mechanism of herbal drug. Hence, for the assessment of the antiulcer and antioxidants effect of *Aloe vera* on induced duodenal ulcer in aged mice we examined following parameters: body weight, gross morphological observation of tissue via ulcer index, histological and histochemical changes in the duodenal tissue and biochemical parameters such as protein, glycoproteins (Hexose, Fucose and Sialic acid), antioxidants enzymes include Reduced glutathione (GSH) activity, Superoxide dismutase (SOD) activity, Catalase activity and total Lipid peroxidation etc.
The thesis consist of five chapter,
Chapter first is introduction it includes detailed information about peptic ulcer, etiology and pathogenesis of ulcer, anatomy and histology of duodenum, aging (free radical theory of aging, free radicals and oxidative stress, gastrointestinal tract and aging, aging and peptic ulcer, detailed and recently available literature on *Aloe vera* plant, choice of plant drug and animal.

Chapter second consists of material and methods. It deals with the experimental protocol used for assessment of different parameters.

Chapter third consist of core part of research work deals with result and discussion

- Effect of *Aloe vera* gel on body weight (in gm) of cysteamine induced duodenal ulcer in aged mice
- Effect of *Aloe vera* gel on histological and histochemical structure of duodenal tissue of cysteamine induced duodenal ulcer in aged mice
- Effect of *Aloe vera* gel on protein and glycoproteins of cysteamine induced duodenal ulcer in aged mice
- Effect of *Aloe vera* gel on lipid peroxidation and antioxidant enzymes of duodenal tissue of cysteamine induced duodenal ulcer in aged mice.

Chapter forth represents summary and conclusion of the work.

Chapter fifth deals with bibliography enlisted references cited for confirming the results of present work.