

3736794 PYPY/M: MAJOR: PHYSIOLOGY; M.S. (Pharm)

KEY WORD: ACID/ PEPSIN/ MUCUS/ *Aloe vera*/ ALOE GEL PREPARATION

CHIARUNGCHAN SUMRONGKIT: EFFECTS OF *Aloe vera* (Linn.) Burm. F. ON THE HISTAMINE-INDUCED GASTRIC SECRETION IN RAT. THESIS ADVISOR: SUWAN THIRAWARAPAN, Ph.D. WISUDA SUVITAYAVAT, Ph.D. NANTAVAN BUNYAPRAPHATSARA, Ph.D. 150 p ISBN 974-589-560-1

The effects of aloe gel preparation on gastric acid, pepsin and mucus secretion were evaluated in histamine-induced rats by comparison to the effects of placebo and fresh aloe gel. The male Wistar rats weighing between 180-220 g were divided into 13 groups according to the doses and types of the test solutions. Group 1 received normal saline (pH 5) at dose of 8 ml/kg and was referred to as the control group. Group 2-6 were 0.25, 1, 2, 4 and 8 ml/kg aloe gel preparation treated rats, respectively. Group 7-11 were 0.25, 1, 2, 4 and 8 ml/kg placebo treated rats, respectively. Group 12 and 13 were received fresh aloe gel at doses of 0.2 and 6.4 ml/kg which was equivalent to aloe gel preparation at doses of 0.25 and 8 ml/kg, respectively. The instillation of the test solutions and collection of gastric samples were performed through the gastric fistula. The sample collection was taken in 1-hour intervals for 4 hours. The gastric samples were assayed for H⁺, pepsin, protein and soluble mucus content. At the end of the 4 hour period, the glandular part of the stomach was assayed for the visible mucus content.

The results show that the aloe gel preparation and placebo at dose of 8 ml/kg inhibit the acid secretory rate. On the other hand, fresh aloe gel at dose of 6.4 ml/kg prolongs histamine stimulatory effects on the gastric acid secretory rate.

The aloe gel preparation and placebo at doses of 0.25 and 8 ml/kg show a stimulatory effect on gastric pepsin secretory rate. Fresh aloe gel at dose of 0.2 ml/kg has no effect on pepsin secretion while the dose of 6.4 ml/kg shows an inhibitory effect on gastric pepsin secretion.

Both aloe gel preparation and placebo increase soluble mucus secretory rate in a dose-dependent manner while fresh aloe gel has no effect. The aloe gel preparation and placebo at dose of 8 ml/kg increase the gastric visible mucus content while fresh aloe gel slightly increased the visible mucus content.

The results from this study reveal that fresh aloe gel at dose of 6.4 ml/kg prolongs the effects of histamine-stimulated acid secretion and inhibited pepsin secretion in histamine-induced rats. However, the effects of aloe gel preparation might result from the compounds in the preparation because there is no significant difference in the secretory rates of aloe gel preparation and placebo treated groups at the same doses. Since the highest dose of aloe gel preparation used in this present study is 32 times of the oral dose for human (per kg body weight), the effects of aloe gel preparation on gastric secretion that are not able to be observed in this present study might be due to the inadequate dose of the preparation used in animal study.