
SUMMARY

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Role of Amlaki (*Embllica officinalis* Linn.) in stress induced experimental ulcers was described.

1. Experimental gastric ulcers were induced in albino rats by various methods of stress like ;

Restraint + aspirin (164)

Haemorrhagic shock (165)

Restraint + water immersion (166)

Restraint + cold (167)

Swimming stress (168)

Activity stress (169)

Aspirin + short term stress (170)

Indomethacin + short term stress (171).

2. Glandular part of the stomach of all animals (100%) developed massive ulcers by the stress. In most of the cases (80 –100%) ulcers were accompanied by haemorrhage. Adhesion and acute dilatation were seen.

3. Powdered fruit of Amlaki (*Emblica officinalis* Linn.) in a dose of 0.75g/kg/day, (exerted maximum activity as revealed from the pilot experiment) was given orally to the animals for three consecutive days before inducing stress.
4. Amlaki (*Emblica officinalis* Linn.) was found "antiulcerogenic" in all the ulcer models studied since it reduced the rate of incidence and severity of ulcers (60 – 90%) induced by stress.
5. Gastric juice was collected from the animals and the rate of gastric secretion, gastric acidity and peptic activity were measured during ulceration as well as after treatment with Amlaki (*Emblica officinalis* Linn.)
6. Rate of gastric secretion, gastric acidity and peptic activity were not significantly affected during ulceration and after treatment with Amlaki (*Emblica officinalis* Linn.).
7. Dissolved gastric mucins of the animals were analysed during ulceration and effect of Amlaki (*Emblica officinalis* Linn.) on it was studied.
8. Level of dissolved gastric mucin in terms of its constituent carbohydrate components viz. total hexoses, hexosamine, methyl pentose and sialic acid was found decreased significantly ($p < 0.025$ to $p < 0.001$) during ulceration. Amlaki (*Emblica officinalis* Linn.) treatment, on the other hand, increased significantly ($p < 0.025$ to $p < 0.001$) the level of dissolved gastric mucin.
9. Gastric mucosal mucus was collected from the ulcerated stomach and the amount was estimated. Effect of Amlaki (*Emblica officinalis* Linn.) on the said parameter was studied.
10. Level of gastric mucosal mucus of the animals was found decreased significantly ($p < 0.001$) during ulceration. Amlaki (*Emblica officinalis* Linn.) treatment could significantly ($p < 0.001$) increase the level of gastric mucosal mucus.
11. Anti-ulcer effect of Amlaki (*Emblica officinalis* Linn.) was, thus, not related

with offensive factors like "acid-pepsin" but had relation with defensive parameters like "mucosubstances of gastric juice and gastric mucosa".

12. Lipid peroxidation was studied in ulcerated stomach. Effect of Amlaki (*Emblica officinalis* Linn.) on the said parameter was studied.
13. Level of lipid peroxides in stomach was found increased ($p < 0.001$) during ulceration. Amlaki (*Emblica officinalis* Linn.) treatment could significantly ($p < 0.001$) decrease the level of lipid peroxides.
14. DNA content of the gastric mucosa was estimated in ulcerated stomach as well as in stomach after treatment with Amlaki (*Emblica officinalis* Linn.) .
15. DNA content of the gastric mucosa, decreased during ulceration, was found significantly increased ($p < 0.001$) by the treatment with Amlaki (*Emblica officinalis* Linn.)
16. Ulcerogenic effect of stress was thus explained in terms of lipid peroxidation which was protected by Amlaki (*Emblica officinalis* Linn.)

In conclusion it can be suggested that ,

Stress could increase gastric lipid peroxidation thereby generate reactive oxygen metabolites. This could damage gastric cells as observed by various workers (65 – 85). This was reflected by decreased amount of DNA in gastric mucosa which, in turn, was responsible for decreased synthesis of gastric mucosubstances. In absence of proper protective layer of mucosubstances, ulcer developed in the stomach.

Amlaki (*Emblica officinalis* Linn.) , on the other hand , could inhibit gastric lipid peroxidation thereby inhibit generation of reactive oxygen metabolites. This could protect the gastric cell from damage. DNA of gastric mucosa was, thus, found increased with a concomitant increase in the level of gastric mucosubstances. These mucosubstances gave a proper protection in the stomach for which ulcers could not develop.

Anti-ulcer property of Amlaki (*Emblica officinalis* Linn.) was thus explained by its anti-oxidative activity. ##