

 Remove stomach and drain its contents into a test tube for determination of: a) acid content and 2) gastric volume.

Determination of total gastric acidity



Topfer's reagent \rightarrow yellowish-orange (free acidity) Ph.Ph \rightarrow red color (total acidity)





Expression of acidity

• mEq or μ Eq/100g body weight

Free acidity can be determined using Topfer's reagent:

To 1 ml of supernatant add 19 ml dist. H2O & 2-3 drops of Topfer's reagent and titrate with 0.01N sodium hydroxide until all traces of red color disappeared and the color of the solution became yellowish-orange. The volume of alkali added was noted. This volume corresponds to *free acidity.*

Two or three drops of phenolphthalein solution was added and titration was continued until a definite red tinge appeared. The total volume of alkali added was noted. The volume corresponds to *total acidity*. Acidity was calculated using the following formula:

Acidity = Volume of NaOH X Normality of NaOH X 1000 X 100 X 20 weight of animal

Induction of duodenal ulcers

1. Cysteamine-induced duodenal ulcers:

Single administration of cysteamine in rats (either male or female); 150-200g; P.O (400 mg/kg twice at interval of 4 hrs.) or S.C. (38 mg/100g).

Animals killed 24 hrs. after cysteamine administration.

Stomach and duodenum removed, opened along the greater curvature

2. In rats, the parkinsonian drug l-methyl-4-phenyl-1,2,3,6tetrahydropyridine (**MPTP**) given in multiple daily doses either per os (p.o.) or subcutaneously (s.c.) induced in a dose-dependent manner duodenal ulcers in the rat.

- The ulcers are given scores based on their intensity as follows:
 - 0 = no ulcer,
 - 1 = superficial mucosal erosion,
 - 2 = deep ulcer or transmural necrosis,
 - 3 = perforated or penetrated ulcer.
 - The ulcer index (UI) was calculated using the following equation:

UI = Mean of ulcer in group + <u>Number of ulcer positive animals</u> X 2 Total number of animals

Control group (n=5)

Rat No.	1	2	3	4	5
Number of ulcers	3	3	0	0	2

UI = Mean of ulcer in group + <u>Number of ulcer positive animals</u> X 2 Total number of animals

