E2 – 01

Preliminary investigation on the effect of selected food ingredients on histamine

Histamine is responsible for some allergic reactions. Certain food ingredients are reported to reduce histamine in food. These include *Garcinia cambogia* (Goraka), *Tamarindus indica* (Tamarind) and *Averrhoea bilimbi* (Bilin). Bacteria also play a role in histamine formation in food.

In two experimental approaches (i) histamine or (ii) the histidine- histidine decarboxylase reaction system was exposed to 10: 1 water extract of the above food ingredients and histidine quantified by tlc- densitometry (500 nm). The solvent system used was $CHCl_3$: MeOH: NH_3 (2:2:1), on silica gel_{G60} plates. Ninhydrin was used to detect spots. Histamine quantification was reliable (r = 0.9484) with a coefficient of variation 2- 4 % in the range of estimation. (0.4 - _ 3.2 µg)

On incubating histamine (200 µg) with goraka, bilin and tamarind extracts and Tartaric acid (0.5 M) it was found that only if methanol was present (at least 50%) , in the system histamine levels declined in the supernatant. This decline was approximately 80% in goraka and less in bilin and tamarind. However, histamine could be regenerated by adjusting pH to 1.5 (gastric pH) it appeared that methanol (which was introduced to mimc conditions of an assay in a previous study) was creating an artifactural situation by precipitating a complex of histamine (possibly with an acidic component of food) which is pH sensitive.

Reaction of histidine and histidine decarboxylase at pH 4.5 and 35 ^{o}C was inhibited by a 10:1 water extract of bilin by 50%. This would also explain the histamine lowering effect of bilin.