***Abstract No: 585*** ***Food, Nutrition and Livestock***

# ANTIOXIDANT AND ANTIMICROBIAL EFFECT OF *GARCINIA CAMBOGIA* AND *TAMARINDUS INDICA* ON MINCED *NEMATALOSA GALATHEAE* FISH UNDER REFRIGERATED STORAGE

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Fish is a valuable protein source, which contains high amount of omega-3 fatty acids. Fish can be easily subjected to microbiological degradation, autolysis and lipids oxidation. Number of antioxidants is used as food preservatives to mitigate the oxidation in food items. Currently, there is an increasing interest in using natural antioxidants due to their health benefits. This study was carried out to investigate the antioxidant and antimicrobial effects of *Garcinia cambogia* and *Tamarindus indica* on minced *Nematalosa galatheae* fish during storage at 4 °C.

The antioxidant potentials of ethanol extracts of *Garcinia cambogia* (GE) and *Tamarindus indica* (TE) were measured by DPPH assay. The polyphenol contents of extracts were quantified by Folin–Ciocalteau's reagent assay and expressed as gallic acid equivalents (µg GAE/g). Equivalent concentrations (1% dry matter basis) of extracts were added to the minced *Nematalosa galatheae* fish separately. A control and a positive control TBHQ (AO) were used for the comparison. Keeping qualities such as pH, 2-thiobarbituric acid-reactive substances **(**TBARS), Trimethylamine (TMA) content, color and total plate count were measured during nine days of storage at 4 °C. Results were statistically analyzed by SAS 9.1.3 programme at $p<0.05$.

Comparatively, TE has shown significantly ($p<0.05$) higher values in DPPH assay and Folin–Ciocalteau's reagent assay than GE. A positive relationship has been found between total phenolic content and antioxidant activity of the extracts. The pH value, TBARS value and instrumental color evaluation differed significantly ($p<0.005$) among the treatments. The antioxidant potential of TE and GE have suppressed the oxidation significantly than the control ($p<0.005$). TE showed a higher antioxidant potential than GE but remained lower than that of AO (0.001% w/w). The total plate count was lower for GE than TE and AO has shown higher value than TE. There was no significant difference among treatments in the case of TMA contents. This could be due to low amount of trimethylamine oxide in muscles resulted by the small size of the fish. Since GE and TE have a potential to retard the lipid oxidation and microbial load in minced fish, they can be used as natural antioxidants. TE has a higher antioxidant potential than GE.