QUALITY OF SELECTED PROCESSED FOOD STUFFS AS AFFECTED BY ENZYMES AND ADDED COLORING MATERIALS

BY

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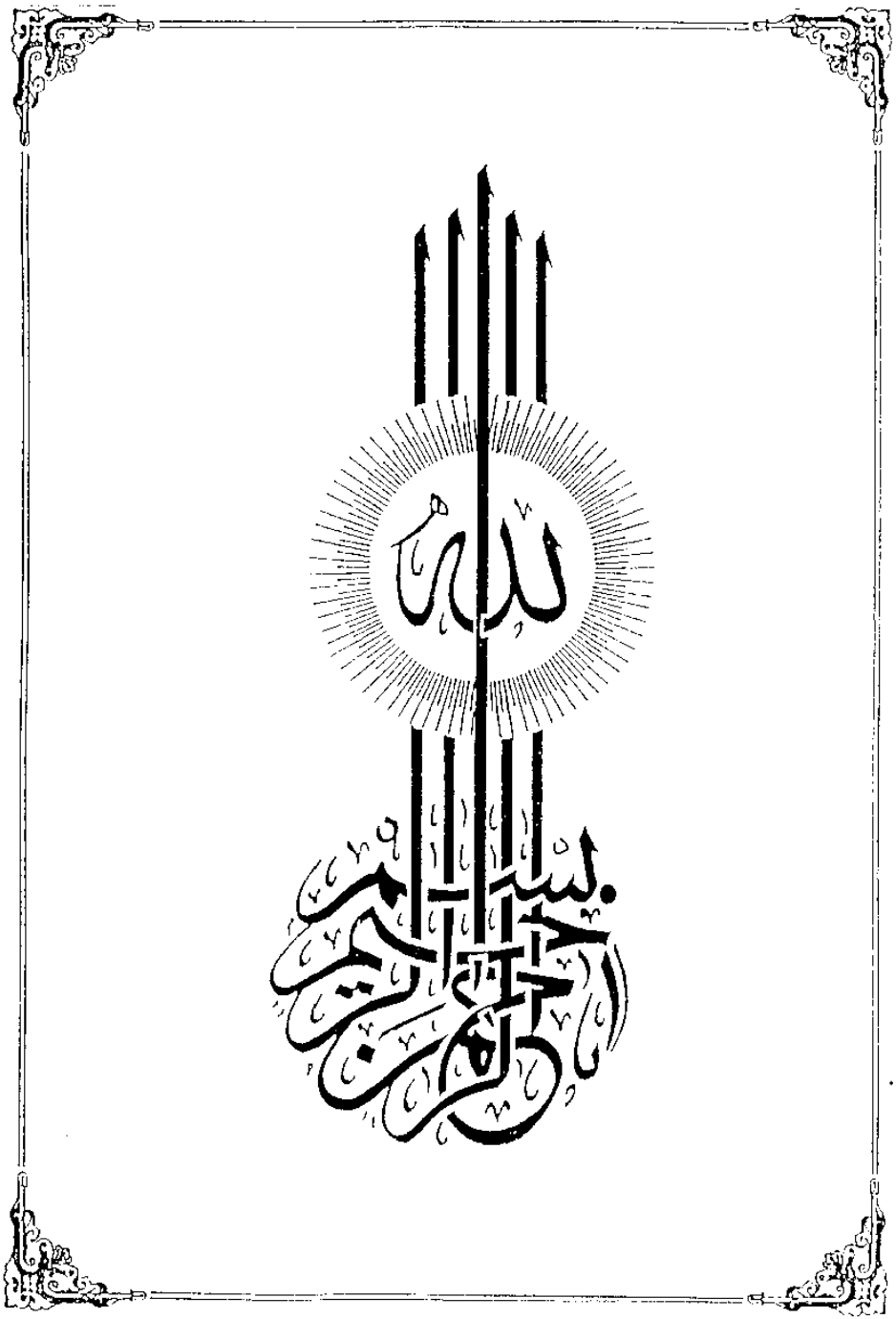

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ABSTRACT

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The problem at hand is dealing with extracting the natural food colorants (red colorants) from roselle and mulberry and (yellow colorants) from turmeric and marigold to study the structure and properties of these colorants, relation between adding these colorants in some processed foods i.e. spaghetti and juices and properties of alpha amylase and pectin methyl esterase as well as the quality characteristics of the selected processed food stuffs.

The obtained data showed that, the best carrier for roselle anthocyanin was dextrin followed by glucose, while dextrin was the only suitable carrier for mulberry anthocyanin. Lactose was more effective adsorpant coated carrier for yellow colorant extracted from turmeric and marigold carotenoids. The anthocyanin colour changes induced by pH variation, however roselle anthocyanin was more stable than the mulberry one up to 70°C. On the other hand, roselle anthocyanin was more stable than mublerry anthocyanin up to 90° min at 70°C.

The highest chromophore loss was observed in carotenoid extracted from turmeric at neutral pH. Carotenoids isolated from turmeric showed a good thermostability in comparing with such that of marigold.

HPLC chromatographic patterns of roselle and mulberry anthocyanin displayed profiles with three pigments identified as cyanidin 3,5-diglucoside, cyanidin 3-arabinoside and delphinidin 3 glucoside for anthocyanin extracted from roselle and two pigments identified as cyanidin 3,5-diglucoside and delphinidin 3 glucoside for anthocyanin extracted from mulberry. On the other hand carotenoids extracted from marigold and turmeric were separated based on their functional groups into three fraction for the first source and four fraction for the latter source.

Properties of alpha amylase extracted from wheat flour 72% extraction and processed spaghetti with different levels of yellow colorants as wells as pectin methyl esterase extracted from mango and strawberry juices with various ratios of yellow colorants and red colorants were also studied.

The higher the level of pigment in prepared spaghetti, the lower is the cooking loss. The cooking loss was 3.3% and 4.5% for spaghetti contained 0.3% turmeric and marigold pigment. For instance, addition of 0.10% marigold or turmeric pigments improved the sensory evaluation of spaghetti manufactured from soft wheat flour 72% extraction.

Strawberry juices prepared in the presence of 0.05 to 0.15% of roselle or mulberry anthocyanin possess a real improving of colour, taste, and general acceptability. However, more than 0.20 anthocyanin may led to unacceptable strawberry juices. Mango juice samples containing 0.15 and 0.20% marigold carotenoids as well as those containing 0.10 and 0.15% turmeric pigment gave superior taste and general acceptability than other tested samples.

Key words: Red colorants, Anthocyanin, Roselle, Mulberry, Yellow colorants, Carotenoids, Marigold, Turmeric, Spaghetti, Alpha amylase, Pectinmethylesterase, Juices, Mango, Strawberry, Pasteurization.

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