Extraction of Natural Food Colorant by using Bovitiya (*Osbeckia stellata*) and Evaluation of its Stability under Different Processing Conditions

M.D.H. Kularathne[1], T. Ranpatabandi[2]*, A.G.A.W. Alakoklangala[1] and E.A.L. Lochana[1]

[1*]*Department of Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka*
[2] *Factory Manager, Tropikal Life International (Pvt) Ltd, Seeduwa, Sri Lanka*

Numbers of phytochemicals have been derived directly or indirectly from natural sources in the form of food supplements, oil, nutraceuticals, and color pigments. Herbal medicines have been used for the treatment of various disorders in Ayurveda medicine and all over the world due to their numerous health benefits. Bovitiya (*Osbeckia stellate)* is a medicinal plant which contains Anthocyanins that is responsible for the various colors of the plant. Anthocyanins have a wide range of pharmacological properties and play a major role in the food industry as natural colorants due to its possible health benefits and safety issues compared to the synthetic dye. In this study, Bovitiya fruits were used to extract anthocyanin pigment. Weighted fruits were blanched to degrade the enzymes responsible for browning, before the extraction procedure. The experiment was carried out using only 50% ethanol solution, according to 1:5 (w/v) ratios. The total monomeric anthocyanin content was measured using a pH differential method. Physiochemical properties and stability under different processing conditions (temperature, pH) were estimated. The stability of color extract was evaluated for one week using standard color codes. The total anthocyanin contents were 62.20 mg kg^{-1} under the optimum condition set at temperature 60ºC, 300 rpm for 3 hours. The study demonstrated that the very dark purple extract of the fruits is stable under low pH values (≤4.7) and unstable under alkaline (≥7) conditions. Also found to be sensitive to high temperature were the conditions like 121ºC for 10 sec. Microbiological stability was tested using the standard method. Total plate count was (3.23±0.2 CFU mL^{-1}) and yeast and mold count was (2.33±0.2 CFU mL^{-1}) and *Coliform*, *E. coli* was not detected. The study carried out on Bovitiya provides information to tap its potential as a colorant in acidic and neutral food.

Keywords: Food color, Bovitiya, Anthocyanin, pH differential method, Physiochemical