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8.15

Standardization of the Protocols for the development of Aonla Wine

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An investigation on "Standardization of the protocols for the development of aonla and pomegranate wine" was carried out at the Department of Postharvest Technology, COH, Bengaluru. Aonla and pomegranate fruits are known for their nutrional values and therapeutic applications. During the preparation of wine for both the experiments equal quantity of pomegranate arils and aonla whole fruits were taken in separate conical flask with sugar syrup of 32º B was added. Aonla (*Emblica officinalis* G.) fruits which were fresh, healthy and mature were obtained for wine preparation. Primary fermentation was carried for 21 days and storage at 30, 60 and 90 days. The whole aonla fruits were used for the preparation of wine repeatedly in three batches. The wine extracted from second and third batch was more acceptable. Among different treatments aonla with 32º B sugar syrup with steam treatment for 5 min was found best and had optimum pH (3.50), TSS (15.58ºB), acidity (0.58%), ascorbic acid (54.83 mg/100ml), total sugar (14.56%), antioxidants (115.72 mg AAE / 100 ml), phenols (112.72 mg/100ml) and alcohol (8.32 %). The overall acceptability score of the aonla wine was 8.7 out of 20.

8.16

Calligonum polygonoides, a rich source of natural antioxidant compounds: First Report

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In the present investigation, different tissues such as flower bud, foliage, barks, and roots of *Calligonum polygonoides* (commonly known as *phog*) were analyzed for natural antioxidants such as total phenolics, flavonoid and *in vitro* total antioxidant activity and compared with clove (*Syzygium aromaticum*), a high phenolic containing plant. It was also investigated to determine their correlation with the antioxidant activity of the extracts. All plant tissues are highly rich in natural antioxidant compounds and values were almost similar or higher than clove with some context *i.e.* bark tissue. Total phenolic contents in different tissues varied from 13437 (flower bud) to 34284 mg GAE/100g DW (Bark) while clove posses 25747 mg GAE/100g. The flavonoid content ranged from 2059 to 5350 mg Ct.E/100g of all plant tissues was also higher than clove (1352 mg Ct.E/100g). As all these parameters are highly correlated to each other with correlation coefficient value of >0.9, thus almost similar pattern for *in vitro* antioxidant activities was observed. These results on phenolics and flavonoid contents were compared with two international phenolic databases i) Phenol-Explorer database and ii) USDA Database for the flavonoid content of selected foods. Nonetheless, none of the database reported the *'phog'* as one of the richest source of natural antioxidant compound including phenolics, flavonoids and *in vitro* antioxidant activity, till date. Therefore, we are proposing first report on natural antioxidant content of C. *polygonoides*. As per phenol-explorer database, clove ranked 1 with 11320 to 24390 mg GAE/100g total phenolic content however, *phog* bark possesed higher total phenolics than clove *i.e.* 34284 mg GAE/100g while *phog* root, foliage and flower buds with 25607, 15197 and 13447 mg GAE/100g posses little lesser total phenolics than clove but higher than any other reported plants. As the *phog* flower bud is edible part, the natural antioxidant production potential of this plant may create wonder in nutraceutical and pharmaceutical industry.