

Title Effect of enzyme assisted processing on antioxidant composition of ber (*Zizyphus Mallritialla* Lamk) juice

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Abstract

Ber (*Zizyphus mauritiana* Lamk) is an excellent source of several polyphenolic compounds. Effect of pre-press maceration treatment with cell wall degrading enzyme *pectinase* at 0.10, 0.15, 0.20 and 2.50 % on antioxidant composition of ber juice was investigated. It was found that enzyme-assisted processing using cell wall degrading enzyme *pectinase* significantly improved the antioxidant composition of ber juice. It was also observed that there was an overall 43% increase in juice yield of ber, 64% in total phenolics and 43% total flavonoid with the enzyme. The ber juice extraction by enzyme-assisted processing contained 298.64 mg CE/100 ml of flavonoids. The enzyme facilitated the preparation of ber and was more efficient in increasing the phenolic content as compared to flavonoids. There was early 1.5 fold increase in phenolics content with enzyme-assisted processing using *pectinase* at 0.25%. The total antioxidant activity in ber juice extracted by enzyme-assisted processing was 19.58 / μ mol Trolox/ml and 13.44 / μ mol Trolox/ml in *in vitro* FRAP and CUPRAC assays, respectively. Due to the liberation of phenolics from the cell wall matrix, the antioxidant activity which was measured as radical scavenging activity was also increased. Enzyme-assisted preparation prior to pressing remarkably improved the functional quality of ber juice resulting in enhanced juice yield, levels of total phenols and total antioxidant activity. Enzyme-assisted processing of ber significantly enhanced the antioxidant composition of juice in contrast to straight pressing. The results could lead to the tailoring of specific enzyme mixture for optimum antioxidant juice products. Results also indicated that ber is a rich fruit in terms of its antioxidant composition and could be commercially processed into phenolic-rich juice.