

## Evaluation of Bioactive Compounds, Antioxidant, Anti-Diabetic, and Anti Inflammatory Properties of Pasteurized Juice from the Noni Fruits (*Morinda citrifolia* L.) Growing in Sri Lanka

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Noni (*Morinda citrifolia* L.) fruit, locally known as ‘Ahu’, is a traditional medicinal plant in Sri Lanka, but not commonly consumed or processed. However, noni juice has gained global popularity as a wellness drink. In this study, we evaluated the bioactive components and antioxidant, anti-diabetic, and anti-inflammatory activities of pasteurized noni juice, expressed per 1 g (FW) of the fruit pulp. The results showed that the total phenolic content was  $(165.85 \pm 0.84)$   $\mu\text{mol}$  gallic acid equivalent, total flavonoids were  $(6.36 \pm 0.22)$   $\mu\text{mol}$  rutin equivalent, ascorbic acid content was  $(24.68 \pm 0.89)$   $\mu\text{g}$ , monomeric anthocyanin content was  $(8.91 \pm 0.96)$   $\mu\text{g}$ ,  $\beta$ -carotene content was  $(0.15 \pm 0.02)$   $\mu\text{g}$ , and lycopene content was  $(0.14 \pm 0.01)$   $\mu\text{g}$ . The juice exhibited antioxidant activities as observed with phosphomolybdenum reduction ( $14.04 \pm 0.05$ ) mg ascorbic acid equivalent), ABTS radicals scavenging ( $723.98 \pm 2.67$ ) mg Trolox equivalent, DPPH radicals scavenging ( $645.98 \pm 2.45$ ), lipid peroxidation inhibition ( $589.98 \pm 2.56$ ) mg ascorbic acid equivalent), nitric oxide inhibition ( $157.08 \pm 1.45$ ) mg ascorbic acid equivalent, and singlet  $\text{O}_2$  inhibition ( $87.02 \pm 2.78$ ) mg gallic acid equivalent. The juice also exhibited anti-diabetic activities with  $(11.10 \pm 0.07)$  % and  $(16.10 \pm 0.03)$  % of  $\alpha$ -amylase and  $\alpha$ -glucosidase inhibitory activities, respectively, at 2  $\mu\text{g}/\text{mL}$ . Additionally, the juice showed anti-inflammatory activities such as heat-induced hemolysis inhibition ( $30.43 \pm 0.39$ ) %, protein denaturation inhibition ( $33.33 \pm 0.34$ ) %, and proteinase inhibition ( $2.25 \pm 0.54$ ) %, respectively, at 2  $\mu\text{g}/\text{mL}$ . These findings suggest that pasteurized noni juice from Sri Lanka contains significant amounts of bioactive compounds and exhibits antioxidant, anti-diabetic, and anti-inflammatory activities, which could potentially contribute to its health benefits.

Keywords: Anti-Diabetic and Anti-Inflammatory Activities, Antioxidant, Noni Juice