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Nitric oxide radical scavenging potential of selected widely used spices and in a mixture of spices

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A remarkable research interest has been shown on phytochemicals in spices and their bioactivities during the last decade. Nitric oxide (NO) radical scavenging potential is one of the assays used in the determination of in vitro antioxidant activity. The study aims to determine NO radical scavenging potential of the aqueous extracts of ten selected Sri Lankan spices and a mixture of spices made from five selected spices with high NO scavenging potential. The spices were randomly collected within the areas of Sabaragamuwa and Southern provinces from their natural habitats. L-ascorbic acid was used as the reference compound in the assay. The NO radical scavenging potential were estimated following the standard protocol using a spectrophotometric assay. The half maximal inhibitory concentration (IC_{50}) was calculated using regression analysis and the values were expressed as mean ± standard deviation (SD) of the three analytical triplicates. IC_{50} values of the selected spices were 269.33 ± 2.21 µg/mL (Piper nigrum), 270.24 ± 4.23 µg/mL (*Curcuma domestica*), 279.85 ± 1.62 µg/mL (*Elettaria repens*), 288.88 ± 0.87 µg/mL (*Myristica fragrans*), 292.59 ± 11.83 µg/mL (*Zingiber officinale*), 322.05 ± 2.13 µg/mL (*Eugenia caryophyllata*), 341.11 ± 1.39 µg/mL (*Cinnamomum verum*), 355.94 ± 2.98 µg/mL (*Cymbopogon citratus*), 356.32 ± 1.31 µg/mL (*Brassica integrifolia*) and 394.19 ± 3.87 µg/mL (*Capsicum frutescens*). There was a statistically significant difference in between ten spices ($p<0.05$). The spices which showed the highest NO radical scavenging potential (lowest IC_{50}) were selected for the mixture. Accordingly, *P. nigrum, C. domestica, E. repens, M. fragrans and Z. officinale* were selected. The mixture showed the highest NO radical scavenging potential with the lowest value of IC_{50} (256.42 ± 0.22 µg/mL) compared to the individual spices. Based on the results, all selected extracts of spices possess NO scavenging potential and the mixture showed the highest activity.

Keywords: Aqueous extract, Nitric oxide radical potential, Sri Lankan spices

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