

## Seasonal Variation in Free Radical Scavenging Properties of Indian Moringa (Moringa Oleifera)

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**Abstract :** The goal of this study was to compare the free radical-scavenging (FRS) characteristics of four Indian moringa (*Moringa oleifera*) plant components: flowers, tender and mature leaves, and seeds that were collected from three Indian districts: Jaipur, Dehra Dun, and Gwalior; in every month of 2021–2022. The samples were collected from three randomly selected agroforest locations from each district. The samples were extracted, and antioxidant properties were determined following the DPPH method with minor modifications. The FRS properties were calculated as the non-absorbance values of the sample in percentage. The factorial ANOVA statistical analysis technique was implemented for comparing FRS properties, and an MS Office Excel 2016 analysis pack was used to compare data. The flowers from Dehra Dun had superior FRS properties ( $27.06 \pm 1.03\%$ ), while the seeds from the same location were inferior ( $8.64 \pm 0.17\%$ ). The FRS properties of flowers ( $26.27 \pm 0.61\%$ ) were not statistically different ( $P > 0.05$ ) compared to those of tender ( $27.30 \pm 0.63\%$ ) and mature leaves ( $28.37 \pm 0.59\%$ ), but significantly higher ( $P < 0.05$ ) than those of seeds ( $9.31 \pm 0.16\%$ ). However, the FRS properties in Indian moringa were significantly higher during the winter (Jan  $28.67 \pm 1.48\%$ ) compared to that in the summer (Jun  $14.03 \pm 0.79\%$ ) season, but collected from three locations, viz. Gwalior ( $22.35 \pm 0.70\%$ ), Jaipur ( $23.06 \pm 0.73\%$ ), and Dehra Dun ( $23.10 \pm 0.76\%$ ), were not significantly different ( $P > 0.05$ ). Based on this study, it can be concluded that the FRS value of flowers during the winter season is superior.

**Keywords :** flowers, free radical-scavenging, leaves, moringa oleifera, seeds

**Conference Title :** ICABR 2024 : International Conference on Agricultural Biotechnology Research

**Conference Location :** Vienna, Austria

**Conference Dates :** December 30-31, 2024