

Identification of bioactive candidate compounds responsible for oxidative challenge from hydro-ethanolic extract of *Moringa oleifera* leaves.

ABSTRACT

Free radicals trigger chain reaction and inflict damage to the cells and its components, which in turn ultimately interrupts their biological activities. To prevent free radical damage, together with an endogenous antioxidant system, an exogenous supply of antioxidant components to the body in the form of functional food or nutritional diet helps undeniably. Research conducted by the Natl. Inst. of Health claimed that *Moringa oleifera* Lam possess the highest antioxidant content among various natural food sources based on an oxygen radical absorbent capacity assay. In this study, a 90% (ethanol:distilled water—90:10) gradient solvent was identified as one of the best gradient solvents for the effectual extraction of bioactive components from *M. oleifera* leaves. This finding was confirmed by various antioxidant assays, including radical scavenging activity (that is, 1, 1-diphenyl-2-picrylhydrazyl, H₂O₂, and NO radical scavenging assay) and total antioxidant capacity (that is, ferric reducing antioxidant power and molybdenum assay). High-performance liquid chromatography (HPLC) fingerprints of the 90% gradient extract visually showed few specific peaks, which on further analysis, using HPLC–DAD–ESI–MS, were identified as flavonoids and their derivatives. Despite commonly reported flavonoids, that is, kaempferol and quercetin, we report here for the 1st time the presence of multiflorin-B and apigenin in *M. oleifera* leaves. These findings might help researchers to further scrutinize this high activity exhibiting gradient extract and its bio-active candidates for fruitful clinical/translational investigations.

Keyword: Antioxidant activity; Apigenin; HPLC; LC-MS/MS; Multiflorin-B.

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