Development of a Medicinal and Aromatic Plants Management Information System for Ensuring Quality, Safety, and Efficacy

Omogbadegun, Z.O\(^1\); Uwadia, C.O\(^2\); Ayo, C.K\(^3\); Omoregbe, N.A\(^4\).

Corresponding author: zacchaeus.omogbadegun@covenantuniversity.edu.ng

\(^1\), \(^3\), \(^4\)Covenant University, Ota, Ogun State, Nigeria
\(^2\)University of Lagos, Lagos, Nigeria

ABSTRACT

Medicinal and Aromatic Plants (MAPs) are increasingly recognized worldwide as an alternative source of efficacious and inexpensive medications to synthetic chemo-therapeutic compound. The low accessibility to and non-affordability of orthodox medicine by rural dwellers and their need to keep healthy to be economically productive, have led to their dependence on MAPs-based form of Complementary and Alternative Medicine (MAPs-CAM) therapies to remedy afflictions. Although MAPs are used to treat and cure diseases, the utilization of such MAPs in modern medicine suffers from the fact that the scientific evidence to support their efficacy and safety is mostly lacking. Major problems associated with MAPs-CAM include lack of standardization, consistency, toxicity, safety, quality, and regulations. Rapid declining wild stocks of MAPs accompanied by disconcerting and unpredictable adulterations and species’ substitutions reduce MAPs’ quality, safety, and efficacy. Correct identification of the species, accurate determination of the content of heavy metal, pesticide residual and mycotoxin are indispensable for safety of MAPs. Researchers confirmed the quality evaluation of MAPs has been promoted with the introduction of comprehensive methods and highly selective, sensitive and versatile analytical techniques including thin-layer chromatography, gas chromatography, high performance liquid chromatography, capillary electrophoresis, gas chromatography-mass spectrometry, liquid chromatography-mass/mass spectrometry. CAM practitioners require evidence-based knowledge towards finding solutions and suggestions for integrating MAPs-CAM with modern healthcare practices. This paper reports the development of a Multimedia-based Medicinal Plants Sustainability Management System that provides phytoconstituents, herb-drug interactions, contraindications, the best available evidence-based safety information, and adverse effects characteristics of MAPs in enhancing evidence-based CAM practice.

Keywords: Complementary and Alternative Medicine; consistency; contraindications; herb-drug interactions; efficacy; medicinal and aromatic plants; modern healthcare practices; quality; safety; sensitive and versatile analytical techniques; standardization; therapies; toxicity