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## Pharmacovigilance in herbal medicine: A paradigm to drug toxicity monitoring

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**P**harmacovigilance is the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other possible drug-related problems. The specific aims of pharmacovigilance are to; improve patient care and safety in relation to the use of medicines and all medical and paramedical interventions, improve public health and safety in relation to the use of medicines, contribute to the assessment of benefit, harm, effectiveness and risk of medicines, encouraging their safe, rational and more effective (including cost-effective) use, and promote understanding, education and clinical training in pharmacovigilance and its effective communication to the public.

Herbal medicines are widely used in both developed and developing countries however, in recent years, there are several highprofile herbal safety concerns having an impact on the public health. There is wide misconception that 'natural' means 'safe'. There is the common belief that long use of a medicine, based on tradition, assures both its efficacy and safety. There are examples of traditional and herbal medicines being adulterated or contaminated with allopathic medicines, chemicals such as corticosteroids, non-steroidal anti-inflammatory agents and heavy metals. Many traditional medicines are manufactured for global use and they have moved beyond the traditional and cultural framework for which they were originally intended. Self-medication further aggravates the risk to patients. When traditional and herbal medicines are used in conjunction with other medicines there is the potential of serious adverse drug interactions.

Various methods in pharmacovigilance are passive surveillance, includes spontaneous reporting and stimulated reporting, active surveillance by sentinel sites, drug event monitoring, registries, comparative observational studies by survey study, case control study, targeted clinical investigations by investigate drug-drug interactions and food- drug interactions.

A number of national pharmacovigilance centres are now monitoring the safety of traditional medicines. For that to succeed, the collaboration and support of consumers, traditional health practitioners, providers of traditional and herbal medicines and other experts is necessary. More attention needs to be given to research and to training of healthcare providers and consumers in this area.

Keywords: Pharmacovigilance, herbal medicines, safety issues, drug-drug interactions, and drug-food interactions.

## A triterpenoid from Hypericumkeniensesch weinf. (Giant St. John Wort) growing in Kenya

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Hypericumkenienseschweinf. (synonyms: Hypericum revolution Vahl, Hypericumlanceolatum Lam.) and locally referred to as "Mûthathumwa" by the Kikuyu community, is a perennial herb of family Hypericaceae, which comprise 484 species that are naturally occurring or which have been introduced in the world, except Antarctica. *H. keniense* is indigenous to Kenya and has been long used in folk medicine. Little has been done on its phytochemistry and only isolation of coumarins has been recorded.

The present study involved isolation and characterization of some of the chemical constituents from the whole stem of the plant. The plant material was collected from Gakoe forest after being identified by local traditional medicine practitioners and later authenticated by a taxonomist. The collected material was phytoscreened and thereafter a methanolic extract was prepared by soxhlet followed by gradient elution in column chromatography using normal silica gel. The results of phytochemical tests indicated that the whole stem had saponins, tannins, phenols, anthraquinones, steroids, carotenoids, flavonoids volatile oils and coumarins. Column chromatographic isolation achieved a crystalline compound which had spectroscopic data (UV/VIS, IR, NMR and MS) strongly suggesting that it would be betulinic acid, a compound of interest in research of plants with anticancer activity in Kenya.