

EDITORIAL**TOWARDS COMMERCIALIZATION OF AFRICAN TRADITIONAL MEDICINES**

Many years ago, back in my village, I regularly used juice from freshly-cut leaf of *Croton macrostachyus*, on bleeding wounds. The bleeding would stop and the wound healed without any other intervention. *Croton macrostachyus* is a common plant in Kenya which is still used by local people as a herbal remedy. The leaf juice is yet to be formulated into a pharmaceutical product with commercial applications. In this issue of the journal, Usifoh et al. have described the formulation of *Chrysophyllum albidum* extract into a topical cream for the treatment of dermatological infections.

Herbal medicine is still the mainstay of about 75–80% of the world population, mainly in the developing countries, for primary health care because of better cultural acceptability. The last 20 years has seen increased usage and preference of herbal medicines in developed countries especially for age-related and chronic disorders like memory loss, osteoporosis, immune disorders and other metabolic and degenerative disorders for which no suitable modern medicine is available. In some cases, herbal medicine has produced better outcomes than allopathic medicine. In addition, cosmetics made from herbal extracts for scars, marks, fairness, cleansing and haircare are popular globally. The herbal medicine market is predicted to reach \$ 111 billion by the end of 2023.

Good manufacturing practices specify that quality control of raw materials, intermediates and finished products are crucial in the design and development of herbal formulations. In order to formulate good quality herbal products consistently, good agricultural and good collecting practices are necessary. Additionally, proper identification of the raw materials cannot be overlooked. To achieve this, key information such as seed origin, quality, time of harvesting, age, herbal yield, agrochemical input, environment factors, processing and post-harvest treatment must be documented. One of the major challenges encountered arises from the fact that the starting materials used in formulating herbal products contain complex mixtures of compounds. Though some of these materials are listed in various official compendia, their chemical markers and chromatographic specifications may not be well documented. Recent studies have considered the use of DNA barcoding and metabarcoding in authentication of herbal materials. This may be a useful tool in identification but not in assay. Another common challenge is getting a consistent supply of good quality raw materials. In order to justify formulation of a commercial herbal product, the source of raw materials needs to be taken into account. Wild source collections are not sustainable due to a diverse factors while mass cultivation is a viable option. Wild plants are not always easy to propagate and therefore, research into high yielding varieties, plant cell or tissue cultures as well as clonal propagation may be considered in order to supply sufficient material for industrial production.

Once the raw material is authenticated, standardization of the herbal material must be considered. This mainly involves identification of marker compounds which are assayed using spectroscopic and chromatographic techniques. For standardization applications, analytical methods must be validated in accordance with specific criteria such as the International Conference on Harmonization (ICH) guidelines. Finally, before a product is ready for the market, the shelf life needs to be determined. For this purpose, stability studies are usually carried out to determine storage conditions and expiry dates of herbal products.

The herbal products industry is an entrepreneurship venture. Thus, market analysis is essential for commercial success. The producer must therefore keep in pace with current information with respect to manufacturing and marketing dynamics of these products.

Someone once said “formulating natural products is like trying to create a painting without being able to use most paint colors in existence”. However, many pharmaceutical and cosmetics companies worldwide have ventured into the herbal products industry with tremendous success. Challenges notwithstanding, commercialization of herbal products is possible and should be the future of African Traditional Medicine.

Prof Julius W. Mwangi

Professor of Pharmacognosy/Editor