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Amplifying the worth of traditional Pharmacopeias by utilizing integrative technologies

In order to best serve the needs of an expanding world population there is a critical need to better understand traditional pharmacopeias before much of their value is lost through aculturation and globalization. This is particularly true for those which are currently understudied and the value of their phytomedicines unknown. In the past most of these endeavors resulted in a list of plants with their associated uses without delineating if they were used alone or as part of a polyherbal formulation. Most studies did not provide information regarding the extent of this knowledge within the traditional group, or if this knowledge was known elsewhere. This practice tended to generate the notion of finite exclusivity without providing proof that this was actually the case. Moreover, since the talents and methods of those conducting these initial studies varied widely, little effort was made to provide adequate information on how selective processes and preferences as well as modes of collection, preparation and use were achieved or how these factors within the context of use could affect “conventional” clinical outcomes. In the laboratory, laboratory studies were often applied without carefully reviewing available data on the chemical composition or bioreactivities of the same or related plants or how common relationships between related target organisms or diseases could be exploited to expand the value of bioreactive ingredients. Without these data, the potential of their clinical worth, bioreactive capacities or chemical compositions were often compromised. This frequently led to expending much time, effort and treasure on a pharmacopeia’s evaluation without guidance as to how these efforts could be optimized. This paper will provide examples on how a better understanding of the worth of a pharmacopeia can be achieved by employing integrative methods and the talents and cooperation of many specialist scientists. Ethnomedical/dental focusing efforts among African and Amazonian indigenous populations have already indicated that popular remedies are likely to be the most beneficial by containing bioreactive compounds targeting the disease process. Evaluations are further enhanced by applying dereplicative techniques so that adequate sourcing of relevant information available in primary and secondary data and online data bases are critically reviewed and incorporated into the evaluation process. These techniques are not only valuable in better understanding the therapeutic rationale behind the use of single and polyherbal plant remedies but are an important prerequisite to the identification of bioreactive compounds. These methods when applied to “phylogenetic amplification” have already been successfully applied by the pharmaceutical industry to prevent extirpation of an endangered medicinal plant (*Taxus brevifolia*) by utilization of precursor molecules from related *Taxus* species in their development of anticancer compounds. Additional disease targets which share phytochemical cross sensitivities, have been identified among related viruses and protozoa but await pharmaceutical interest. Thus integrative studies have proven valuable in authenticating worthy herbal remedies in the context of use, of elucidating the rationale behind the use of complex formulations designed to contain ingredients with complementary bioreactivities as well as providing alternate plant sources to the pharmaceutical industry.

Biography

Memory Elvin-Lewis has received university degrees from the University of British Columbia, BA (1952); DSc Honoris Causa (2012), University of Pennsylvania, MSc in Medical Microbiology (1957), Baylor University (MSc in Virology and Epidemiology (1960), the University of Leeds PhD in Medical Microbiology (1966) and Andrews University (DSc Honoris Causa (2003). She has been the recipient of many national and international awards and honors including the Silver Medal, “Primio Martín De La Cruz”; Mexican Academy of Traditional Medicine (2001), Distinguished Economic Botanist, Society of Economic Botany (2006) and Dr. E K Janaki Ammal Medal, Society of Ethnobotanists, India (2008). She has been President of the Microbiology Sections of both the American Association of Dental Schools and the International Society of Dental Research and continues to serve on editorial boards or as a reviewer on numerous national and international publications. Her publications encompass subjects in ethnobotany and ethnopharmacology, medical-dental botany, microbiology, virology, epidemiology, anthropology, legal aspects of benefit sharing, and adverse effects of herbal products. Invited lectures (60 +); Proceeding abstracts (45) Journal articles (53) Book reviews (7) and Book chapters (25), Books (2) with W.H. Lewis. Medical Botany: Plant affecting Human Health. John Wiley, NY.

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