



A Literature Review on Medicinal Plants That are being Used in Traditional Medicine for the Management of the Snake Bites in Sri Lanka

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Authors' contributions

This work was carried out in collaboration between both authors. Author NRM designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author VS managed the literature searches and analyses of the study. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Traditional Medicine is time-tested and still caters to the health needs of the society and provides health care through prophylactic treatment and rejuvenation. Today poisonous snake bites are life-threatening problems resulting in high morbidity and mortality all over the world including Sri Lanka. The medicinal plants available locally and used widely by traditional healers. Therefore they need attention in this aspect.

Aim: The primary aim of this study was to do a literature review on essential characteristics of medicinal plants which are being used for the management of snake bites in Traditional Medicine.

Place and Duration of the Study: Unit of Siddha Medicine, University of Jaffna from April to June 2018.

Methodology: Data for the literature review on 94 medicinal plants from 41 families were collected from relevant books and research articles. The characteristics of the medicinal species that were

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identified for the review were morphology; habitat; parts used; Siddha properties such as taste, potency and efficacy; pharmacological action; the number of plants used for dietary purposes; poisonous plants; phytochemical contents and mode of transmission.

Results: From the 94 medicinal plants, 9 (9.6%) of the species were found in *Fabaceae* and followed by 6 (6.38%) in *Cucurbitaceae* and *Apocynaceae* families. Based on the morphology 24 (25%) plants were herb and shrub; 42 (45%) were found in the natural habitat. From these plants, 31 species (26%) were used as root and 29 (24%) as leaves. These plants contain: Siddha properties such as bitter taste [52 (48.14%)]; hot potency [64 (70.32%)] and pungent efficacy [68 (72.34%)]. Pharmacological actions such as diuretic [36 (38.3%)]; tonic [35 (37.23%)]; astringent [33 (35.1%)] and stimulant [32 (34.04%)]. Phytochemicals such as flavonoids 88 (93.61%) and saponin 81 (86.17%) were highly found in these medicinal plants. Fifty (53.19%) of these species were used as external and internal medication in the management of snake bites.

Conclusion: This literature review provides useful documented evidence on the management of snake bites in Traditional Medicine. However, there is a need for further extensive scientific studies to be carried out to justify its clinical potential in the management of snake bites.

Keywords: Medicinal plants; management; snake bite; traditional medicine.

1. INTRODUCTION

Traditional Medicine comprises a medical aspect of traditional knowledge that developed over generations within various societies before the era of modern medicine [1]. It is termed as Alternative Medicine, Complementary Medicine, and Indigenous Medicine in many countries [2]. The World Health Organization (WHO) defines traditional medicine as “the sum total of the knowledge, skills and practices based on theories, beliefs and experiences indigenous to different cultures, whether explicable / not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness” [2].

Snake envenomation is a significant global health issue. It constitutes an occupational hazard mainly in the field of agriculture [3]. Universally higher than 5 million snake bites occur each year. They result in about 2.5 million cases of poisoning and 20,000 to 125,000 deaths in the world [4]. Sri Lanka has a great diversity of snake species. Around 294 species of snakes are found globally and 96 species are found in Sri Lanka, of these 50 species are endemic to the Island. There are also 13 species of sea snakes and 10 species of blind snakes in Sri Lanka [5]. Around 5 species of land snakes are venomous such as King Cobra, Common Cobra, Common Krait, Russell's viper and Saw Scaled Viper [6,7]. These poisonous snakes are dangerous as they are responsible for 98% of the human deaths in Sri Lanka [5].

In the traditional healing system, the plant kingdom has been a primary source of medicine.

In this region, 70%-80% of the people use herbal treatment for primary health care [2]. The plant kingdom provides a good alternative to the anti-snake venom. Traditionally medicinal plants have been used as folk medicine for the management of snake bites [3].

Traditional knowledge of snakebite treatments has been passed on from generation to generation within families. Globally Traditional Physicians are practicing herbal medicine for the treatment of snake envenomation; however, the practice is not really recognized by modern medicine [3]. Few scientific studies have evaluated the use of medicinal plants in the treatment of snake bites. Commonly in Sri Lanka, there is only limited information on this topic. This present literature review is an attempt to produce documentation and awareness of the numerous herbal materials which are being utilized for the management of snake bites in Sri Lanka.

2. METHODOLOGY

2.1 Study Design

It is a review of relevant and current literature on herbal treatment of snake bites.

2.2 Place and Duration of the Study

Unit of Siddha Medicine, University of Jaffna from April to June 2018.

2.3 Data Collection

Data for the literature review were collected from related past and recent textbooks, websites,