

Review

Review on herbal remedies used by the 1860 South African Indian settlers

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With the current advancement in indigenous knowledge systems in South Africa, traditional remedies are becoming more recognised. The use of these miracle plants has drawn attention to their origins. The 1820 settlers have together with their belongings brought across a wealth of plants which were used at the time when access to medical practitioners were limited or absent. The use of these plants needs to be noted. In line with the 150 year commemoration of the 1820 settlers, this paper reviews some of the ayurvedic plants being currently utilized and which were brought to South Africa along with the settlers.

Key words: Ayurveda, *Ocimum tenuiflorum*, Tulsi, *Moringa oleifera*, *Melia azederach*, *Murraya koenigii*.

INTRODUCTION

Ayurveda is India's traditional and natural system of medicine that has been practiced for more than 5,000 years. Ayurveda is a Sanskrit word that literally means "science of life" or "practices of longevity." For several thousand years, Ayurvedic teachings were passed on orally from teacher to student and about the fifth to sixth century BC, elaborate detailed texts were written in Sanskrit, the ancient language of India. Ayurveda provides an integrated approach to preventing and treating illness through lifestyle interventions and natural therapies using medicinal plants.

In India, about 20 000 medicinal plants have been recorded (Dev, 1997); however, traditional communities use only 7000 to 7500 plants for curing different diseases (Samy et al., 2008). Plant derived medicines have therefore been the first line of defence in maintaining health and combating disease, especially in rural impoverished communities.

In the last three decades, these medicinal plants have led to the preparation and marketing of various drugs (Dev, 1997). These "herbal drugs" or phytomedicines are single plant extracts or fractions that are distinct from the

pure chemical entities of molecular drugs (Dev, 1999). The present global market for these products has been estimated to be approximately \$20 billion U.S. and is growing at a rate of 15 to 20%, annually (Dev, 1997). In the last century, however, approximately 121 pharmaceutical products have been discovered based on information derived from traditional healers (Anesini and Perez, 1993). New drugs from medicinal plants have risen significantly as chemical principles become much simpler; this has led to a commercial exploitation of herbal plant products

The Kwazulu-Natal economy was boosted by the development of sugar cane plantations in the subtropical coastal lowlands in the 1800's. Indian indentured labourers were imported in 1860 to work in the plantations, and many Indian traders and gardeners followed. The sugarcane settlements on which they were placed had the bare minimum in terms of proper housing, sanitary facilities, availability of water and medical care. Wages were minimal and nutritious food was scarce. However, they were intuitive enough to rely on the various herbs and seeds that they brought with them from India, which they readily planted and harvested. Despite their severe poverty, the settlers thrived and their medical anecdotes have been passed down to generations. The following is a brief account of some of the important plant species that they used extensively.

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PLANT SPECIES

Ocimum tenuiflorum (Tulsi)

O. tenuiflorum (Tulsi) has been used extensively in Ayurveda for its diverse healing properties. It is considered to be an adaptogen (Kuhn and Winston, 2007), balancing different processes in the body and useful in the treatment of stress (www.botanicalpathways.com). Marked by its strong aroma and astringent taste, it is regarded in Ayurveda as a kind of "elixir of life" and believed to promote longevity (Singh and Rasayana, 2002). Tulsi extracts were used to treat colds, headaches, stomach disorders, inflammation, heart disease, various forms of poisoning and malaria (www.botanicalpathways.com). Traditionally, tulsi is taken in many forms example herbal tea, dried powder, fresh leaves, or mixed with ghee (clarified butter). The leaves are left to soak in boiling water for approximately 10 to 15 min, and then removed, and the subsequent concoction is drunk. Due to its antibacterial properties, it is also widely used in skin preparations and even mixed with grain to repel insects (Biswas and Biswas, 2005). Recent studies have shown that tulsi contain a high concentration of eugenol (1-hydroxy-2-methoxy-4-allylbenzene) that may be a COX-2 inhibitor, similar to modern day painkillers (Prakash and Gupta, 2005). Other studies have shown that tulsi can be used for the effective treatment of diabetes by reducing blood sugar levels due to its antioxidant properties (Seti et al., 2004), which was shown to reduce total cholesterol levels in the blood (Rai et al., 1997) and can protect from radiation poisoning (Devi and Ganasoundari, 1999) and cataracts (Sharma et al., 1998). The tulsi plant is considered as auspicious and is frequently found near prayer places around homes and places of worship. Some devotees consider that the plant is religiously significant and a home where the plant is found is under the protection of Lord Krishna. According to Claus et al. (2003), tulsi is worshipped throughout India, most often regarded as a consort of Vishnu in the form of Mahalakshmi. To this end, there are two types of tulsi that are worshipped in Hinduism: "Rama tulsi" which has light green leaves and is larger in size; and "Shyam tulsi" which has darker green leaves and is important for the worship of Vishnu (Simoons, 1998). Therefore, it is clear, that the settlers considered the tulsi as a "must have" plant based on its medicinal properties, but more significantly for its religious significance. Tulsi plants thus, commonly occur around Hindu homes in South Africa.

Drumstick tree (*Moringa oleifera*)

Few of the settlers have knowledge of some of the basic principles of Ayurveda and were aware of the nutritional value of some plants (Cooppan, 2010). According to Cooppan (2010), the settlers carried the seeds of many

medicinal plants and these were planted immediately on arrival in the new country. Foremost of these was the "Drumstick tree" (*M. oleifera*). The trees grew quickly and soon, many labourers had access to an amazing nutritious food source. Research has now revealed that the drumstick tree renowned in Indian medicine as the perfect food containing an amazing variety of nutrients (Fuglie, 1999). The pods, leaves and flowers are edible, and were routinely cooked as an herb curry using a minimum amount of spices. According to Fahey (2006), two non-governmental organizations (Trees for life, Church World Service and Educational Concerns for Hunger Organization) have advocated *Moringa* as "natural nutrition for the tropics" as it is frequently used to combat malnutrition, especially among infants and nursing mothers. Ancient texts say that the leaves prevent 300 diseases (Cooppan, 2010) and have antibacterial properties (Fuglie, 1999). Most of the settlers considered the plant to be a useful tonic, especially for infants and children. The leaves of the drumstick tree contain high amounts of vitamin A (4 times that of carrots), vitamin C (seven times that of oranges), and double the protein of calcium up to four times as that of milk, and triple the iron of spinach and the potassium of bananas (Fuglie, 1999). Some of the properties of *Moringa* are outlined in Table 1.

The early settlers used a decoction of the leaves to lower blood pressure and some even used it to brew a tea to eliminate stress induced headaches (Cooppan, 2010).

Melia azederach

Infection control to limit the spread of diseases such as mumps, measles and chicken pox included placing a brass container containing turmeric water and syringa (*M. azederach*) leaves at the entrance of a home when inhabitants were infected. This act warned neighbours and relatives to stay away. Those that had to enter had to remove their shoes; a way to prevent other infections from being brought in. Turmeric sticks and *Syringa* leaves were subsequently ground to a paste using water and applied as a cooling paste on the surface of the skin in order to reduce the redness and itching. A study carried out by Ramya et al. (2009) showed that crude leaf extracts of *M. azederach* showed significant inhibition of various Gram positive and Gram negative bacteria. Khan et al. (2002) indicated various ethnobotanical uses of *M. azederach* (Table 2).

It is therefore evident that the juice extract from the leaves of *Syringa* may possess antimicrobial properties and this may have a limiting effect on the duration of the illness. The antiviral properties of *Syringa* may work in the gastro-intestinal tract and limit the spread of viral lesions of chicken pox, measles and mumps (Cooppan, 2010).

Table 1. Reported nutritional and therapeutic uses of *M. oleifera*.

Traditional use/condition/effect	Plant part	Reference
Antimicrobial	Leaves, flowers, seeds, pods, roots, bark, gum	Caceres et al. (1991); Dahot (1998); Dayrit et al. (1990); Eilert et al. (1981); Jadhav et al. (2000); Monzon (1995); Pal et al. (1995); Pal et al. (1995); Rajendhran and Mani (1998); Spiliotis and Lalas (1998); Udapa and Udapa (1998); Udapa and Udapa (1994); Villasenor (1994)
Asthma	Roots, gum	Fuglie (1999)
Cancer	Leaves, flowers, seeds, pods, bark	Bharali et al. (2003); Costa-Lotufu et al. (2005); Delaveau (1980); Jadhav et al. (2000); Murakami et al. (1998); Pal et al. (1995)
Circulatory/Endocrine disorders	Leaves, flowers, seeds, pods, roots	Grant and More (1995); Mazumder and Gupta (1999)
Detoxification	Bark, seeds (oil)	Kumar and Pari (2003); Warhurst et al. (1997)
Digestive disorders	Leaves, seeds, roots, bark, gum	Gilani et al. (1994)
Inflammation	Leaves, flowers, seeds, roots, pods, gum	Caceres et al. (1992); Delaveau (1980); Ezeamuzie and Ambakederemo (1996); Jadhav et al. (2000); Jacquat and Bertossa (1990); Njoku and Adikwa (1997); Rao et al. (1999); Udapa and Udapa (1998, 1994)
Immunity	Seeds (oil)	Jayavardhanan et al. (1994)
Nervous disorders	Leaves, flowers, roots, bark, gum, seeds (oil)	Gupta and Mazumder (1999); Gupta and Mazumder (1997); Mekonnen (1999)
Nutritional	Leaves, seeds, bark	Asres (1995); Babu (2000); D' Sousa and Kulkarni (1993); Delaveau (1980); Dhar and Gupta (1982); Freiburger and Vanderjagt (1998); Fuglie (1999); Geervani and Devi (1981); Jahn (1991, 1996); Morton (1991); Palada (1996)
Reproductive Health	Leaves, flowers, pods, roots, bark, gum, seeds (oil)	Faizi et al. (1998); Gilani et al. (1994); Jadhav et al. (2000); Prakash (1988)
Skin Disorders	Leaves, roots, seeds, gum	Udapa and Udapa (1998, 1994)
General Disorders	Leaves, flowers, seeds, pods, roots, bark, seeds (oil)	Anderson and Bell (1986); Asres (1995); Dahot and Memon (1987); Jadhav et al. (2000); Jahn et al. (1986); Jahn (1996); Jacquat and Bertossa (1990); Kumar and Goel (1999); Leuck and Kunz (1998); Memon and Memon (1985); Morton (1991); Muluvi et al. (1999); Nautiyal and Venkataraman (1987); Palada (1996)

Turmeric

Many of the labourers brought with them many spices that were used for medicinal purposes. In every settler

community, was a knowledgeable elder that knew how to mix certain spices together to cure illnesses. These "wisdom keepers", who are not doctors, were able to provide a service that enabled many to survive life

Table 2. Ethnobotanical uses of *M. azederach* (Khan et al., 2002).

Disease	Mode of application	Part used
Burns	Extract applied externally on skin	Leaf
Gingivitis	Extract applied used as a mouthwash	Leaf
Gonorrhoea	Infusion (30 to 50 ml) administered orally thrice a day	Stem (bark)
Piles	Extract (5 ml) administered orally thrice a day	Leaf
Pyrexia	Extract (5 to 10 ml) administered orally, twice a day for seven days	Leaf

threatening illnesses. A classical example of this spice is turmeric. It was routinely mixed with ginger and milk and administered to people that had the common cold. This potent concoction apparently reversed inflammation in the throat and lungs allowing symptoms of the illness to radually dissipate over a short period. The common name given to this drink was “manja” and people frequently drank the concoction even at religious festivals such as Mariammen (commonly called porridge prayers). Tumeric was also used to clean and heal wounds. Since penicillin was rarely available at this time, turmeric was a substitute. Many mothers used to rub turmeric paste over the bodies of babies and young children to apparently reduce hair growth. It was also mixed with water and consumed to relieve stomach pain and to wash out toxins from the digestive system (Cooppan, 2010).

Ginger

It was a common practice to drink “ginger milk” to relieve the symptoms of colds and flu. The drink was prepared by crushing fresh ginger in milk and then adding honey to the hot mixture. This long standing recipe is still practiced today even though many modern day cold therapies contain ginger extract. Ginger is a powerful antioxidant and as anti-inflammatory properties. It is a potent mucolytic and when used in combination with turmeric, it provides relief from colds and flu (Cooppan, 2010).

Murraya koenigii

Another commonly used species was *M. koenigii*, referred to as “curry leaf”. The leaves of the plant are aromatic and it is a natural flavouring agent frequently used in curry dishes. It is almost a necessity that every Indian family has a fully grown curry leaf shrub growing in their gardens; such was the dependency of the plant in typical dishes. Leaves of the plant was ground to form a paste and smeared on the skin. Green leaves of *M. koenigii* have been used in traditional medicine for the treatment of piles, headache, stomach ache, influenza, rheumatism, traumatic injury, insect and snake bites, anti-vomiting, curing dysentery and diarrhoea (Dhakraborty et al., 1965; Kong et. al., 1986). Researchers have shown that the leaf extracts of the plant significantly reduce the

level of blood glucose in experimental diabetic rats (Arulselvan et al., 2006). It has also been found that carbazoles from leaf of *M. koenigii* extracts have strong anti-oxidative activity (Tachibana et al., 2001, 2003). A ten percent curry leaf diet resulted in the reduction of total serum cholesterol content (Khan et al., 1996). Extracts and carbazoles have also been reported to have antimicrobial (Nutan et al., 1998) and anti-inflammatory (Ramsewak et. al., 1999) activities. Many inhabitants explained that rubbing a paste made from the leaves of the curry leaf on the skin gets rid of sores and rashes. In the absence of a good health care system, the indentured labourers’ use of the plant played a vital role in the inhabitant’s survival of a health care crisis and taking care of their well being. Many “medicine” men and women were well revered in the community and were frequently consulted when a crisis arose. Although, this knowledge is still routinely used by elderly Indians in South Africa, most of the cures and information is being lost due to ignorance and denial.

CONCLUSION

Although, most of the medical knowledge has filtered through the generations, many rely on traditional western medicine to provide appropriate cures for illnesses. This is not surprising as South Africa generally possess a very good health care system and our locally trained doctors are highly sought for in the first world countries. Thus, the ready availability of modern medicines has resulted in loss of knowledge about traditionally used plants that our forefathers benefitted from. However, modern day therapeutics is also unlocking the potential of previously used medicinal plants and this has resulted in renewed interest in many medicinal plants and herbs.

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