

## 4.3 PLANTS OF NORTH AMERICA

### 4.3.1 Sacred Plants of Native North America

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#### Abstract

In this chapter, the use of some plants for spiritual and ceremonial purposes by the Native North Americans is described. The geographic context is continental North America north of the Rio Grande River. The chapter is divided into an introduction containing broader information about traditional ceremonies, followed by the characteristics of sacred plants. Finally, the chapter concludes with a summary and discussion.

**Keywords:** sacred plants, North America, indigenous people, First Nations

#### Introduction

Various plants are used by the indigenous cultures of North America for ceremonial, ritual and usually also medicinal purposes. Basically, four of them are considered sacred: sweet grass, tobacco, cedar and sage, each one representing a part of the so-called “medicine wheel”. According to Dapice (2006), the “medicine wheel” also symbolizes the stages of life (birth, youth, adult, death), seasons of the year, elements of nature (fire, air, water, and earth), totem animals (eagle, bear, wolf, buffalo), four parts of a person (physical, mental, emotional and spiritual), and four directions.

The medicine wheel embodies sweet grass, which is connected to the North and it is used by indigenous people for ritual cleansing. Tobacco is considered sacred by the most First Nations peoples.<sup>48</sup> It represents the East, and it is used for the offering of the Pipe to the four directions, e.g. during Lakota traditional ceremonies (P. B. Steinmetz, 1990). Cedar, the South, is commonly used for purification. In the form of tea, it also serves as a source of vitamin C found in the needles and bark of the tree. Sage, the West, has been used for preventing infections because of its strong antibacterial qualities (Tilford, 1997: 128), as a treatment for headache (Kay, 1996: 106) or as a foot deodorant (Camazine & Bye, 1980). The Cahuilla, Costanoan, Diegeño, Kawaiisu, and Maidu tribes of California used sage seeds to clean and heal their eyes (Beck & Strike, 1994). There are also two other plants that are important from the religious point of view discussed below, creosote bush and peyote.

The previously mentioned plants are used traditionally during ceremonies for smudging, healing circles, sweat lodges, and pipe ceremonies. Of course, each tribe has its own distinct practices and ceremonial protocols. Religious ceremonies usually contain healing features as well. The healing arts are holistic, and they integrate practices such as traditional ceremonies, rituals and herbal medicines focusing on the whole person – the body, mind and spirit (Horn & Horn, 2000).

In a ceremony called smudging, traditional healers using firing techniques, may burn herbs in an abalone shell to purify people and places. The most common herb used in smudging is white sage (*Salvia apiana*), but cedar and sweet grass are used as well. The shell represents water, the first of four elements of life. During the ceremony, people put their hands in the smoke and carry it to their body, especially to areas that need healing (Struthers, Eschiti & Patchell, 2004).

Healing circles are similar in their form similar to group therapeutic sessions common in psychotherapy, and are deeply rooted in the traditional practices of indigenous people, most notably among the Ojibwe and Lakota in Canada. Frequently used at gatherings, healing circles allow participants to speak to their community and to heal their physical, emotional and spiritual wounds. A symbolic object, often an eagle feather, may be given to

a person who wishes to speak, and then it is passed around the circle in sequence to others who wish to speak. Currently, healing circles are used as part of complementary therapies, e.g. for people living with HIV or cancer (Rutledge & Walker, 2012).

Bucko (1999) provides one of the most comprehensive books on the ritual of the sweat lodge, first reported in the seventeenth century. Sweat lodges have been reported on Huron archeological sites. Similar structures have been identified at other historic and prehistoric Iroquoian sites. These findings suggest the considerable antiquity and cultural importance of this practice. The distribution of sweat lodges is Pan-American (MacDonald 1978).

Paul Kirchoff, a German anthropologist most noted for defining and elaborating the culture area of Mesoamerica, a term he coined, also documented another type of sweat lodge, *temazcal*, which originated among pre-hispanic indigenous people in Mesoamerica (Tonatiuh & Contreras, 2001). However, profound ethnohistorical accounts, while available, are circumspect and scarce.

Historically, the sweat lodge was a place of spiritual encounter, including prayer, healing and seeking spiritual guidance and power. Of course, on the physical level, its primary function was purification (Stebbins, 2013: 163–165; Steinmetz, 1984: 47).

In recent decades, the sweat lodge, especially its Sioux version called *inip*, became popular among non-native inhabitants of the American West (Weil 1982). Various authors report on transpersonal experiences induced by sweat lodges among non-native practitioners (Bruchac, 1993; Hibbard, 2007; Paper, 2012). For a personal experience from ethnomedicinal point of view, see Aung (2006).

Another important native tradition is represented by the pipe ceremony, which plays a key role in the spiritual and social life of many indigenous tribes. The use of pipes and tobacco by the natives of North America has been the focus of numerous studies by archaeologists and ethnographers. Mitchem (1991) provides a brief history of tobacco grown by many Native Americans who otherwise did no gardening.<sup>49</sup> Historically, mythology and symbolism of the sacred pipe are included in a comprehensive work by Paper (1988).

According to Winter (2000) tobacco has been used as an offering in prayers, as a sacred marker to keep evil spirits away, and as a purification agent in healing. Watts (2001: 37) reports on smoking tobacco in a sacred pipe ceremony as part of the sweat lodge. Steinmetz (1990: 55) provides a profound religious study of the sacred pipe ceremony among the Ogalala Lakota. Waldram (1997) focuses on the role of the pipe in symbolic healing and seeking a way to regain and promote the heritage and identity of indigenous people.

There are also many other traditional herbs with no mind-altering effects smoked in a pipe instead of tobacco or as mixtures, e.g. bayberry (*Myrica cerifera*), bearberry (*Arctostaphylos uva-ursi*), mugwort (*Artemisia Vulgaris*), and many other plants indigenous to the local area. For example, Moerman (1986) documented the use of the inner bark of redosier dogwood (*Cornus sericea* L. ssp. *sericea*) among the Apache, Cheyenne, Dakota, Montana Indians, Ojibwa, Potawatomi, Omaha, Ponca, and Thompson.

## Characteristics of Sacred Plants

### Tobacco

Tobacco (*Nicotiana* sp.) is a tall perennial herbaceous flowering plant that belongs to the Solanaceae or nightshade family. There are more than 70 species of tobacco, but only

48 “First Nations”, most often used in the plural, has come into general use replacing the deprecated term “Indians” for the indigenous people of the Americas. A more recent trend is for members of various nations to refer to themselves by their tribal or national identity only, e.g. Mi’kmaq, Potawatomi, Ojibwe etc. (Moerman, 2009).

two tobacco species are used to obtain the raw material for tobacco products (cigars, cigarettes, snuff, snus, pipe tobacco etc.), *Nicotiana tabacum* L. and *Nicotiana rustica*.

Euro-American domestic tobacco is derived from *N. tabacum*, which originated in the Caribbean; it is the most important tobacco species in modern agriculture and international trade. It is the world's most widely-cultivated non-food crop and its performance under different soil and climate conditions meets the demand in many markets (Winter, 2000: 93).

In Eastern and Central North America, the native tobacco is *N. rustica* (Paper, 2007). This tobacco species is used widely since the 16<sup>th</sup> century. Ironically, northern First Nations were introduced to tobacco, not by their southern neighbours, where *N. rustica* originated, but through trade with Europeans (Collishaw, 2009).

There is a written record that Spanish colonists in the late 1400s and early 1500s encountered the Taino, Maya and other local tribes growing it. Nowadays, tobacco is still cultivated by indigenous people in South America and in the southern part of North America, the Caribbean, southern Arizona, and South Texas (Winter, 2000: 93).

Chemical analysis of residue extracted from stone pipes and pipe fragments excavated at sites in the South Pacific Northwest Coast of North America demonstrate that hunter-gatherers smoked tobacco by at least AD 860 (Tushingham *et al.*, 2013).

The tobacco plant, *Nicotiana*, shares its name with the chemical compound nicotine derived from the name given to tobacco by Jean Nicot de Villemain, who in 1560 brought its seeds and leaves as a “wonder drug” to the French court.<sup>50</sup> The plant was first considered decorative, and then as a cure for migraines and other diseases. Finally, it became a common snuff used by the rich. The 19<sup>th</sup> century was the age of the cigar, and the 20<sup>th</sup> century saw the rise of the manufactured cigarette.

The real danger of tobacco did not become clear until it was separated from its religious roots and linked to the secular world of commercial exploitation. However, religious proscriptions did not prevent recreational use. Native people currently suffer the ensuing morbidity and mortality produced by consumption of commercial tobacco which represents “everything that is wrong with Euro-American culture, including greed, dishonesty, theft, drug addiction, and a hedonistic value system at its worst.” (Winter, 2000: 368)

## Cedar

Cedar is a species in the genus *Thuja*, in the family Cupressaceae. It is one of the most important Native American ceremonial plants, used by many tribes (e.g. Mi'kmaq, Potawatomi, Makah, and Cheyene) as an incense and aromatic detoxifier (Gilmore, 1991; Hart & Moore, 1992; Tallbull, 1993).

There is some potential confusion here about the terms used to name plants, mainly because in some areas, junipers are known as “cedar” – as in the case of desert white cedar (*Juniperus monosperma*). Although *J. monosperma* was also used as a cleansing herb, in the Eastern U.S. it was its relative, Eastern red cedar (*J. virginiana*), which was used ceremonially (Geniusz, 2009).

Another species (*Thuja plicata*), also known as Western red cedar, or Californian incense cedar (*Libocedrus decurrens*), was used in smudging ceremonies in spite of juniper varieties (Densmore, 1974).

Cedar plays an integral role in the spiritual beliefs of First Nations in the Pacific Northwest, where people burn it for purification in much the same way as sage (see below). Salish and Tlingit shamans in British Columbia often had cedar “spirit assistants” and “guard figures” to protect them, and the trees were honoured with offerings and prayer (Stewart, 1995:84).

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49 “Catlinite pipes and other red stone pipes have been found in Andena perior sites dating more than 3000 years old (Sigstad, 1973).”

Rhind (2013: 192) reported on the possible analgesic and anti-inflammatory properties of yellow cedar (*Thuja occidentalis*), useful for muscular and joint pain, and frequently applied as dressing for wounds.

The essential oil from *J. virginiana* is antiseptic, expectorant and mucolytic. Nowadays, it is widely used in the fragrance industry – this is also the reason why Virginian cedar crossed cultures and transcended time, with as much relevance as in ancient Egypt (Ibid.).

## Sage

True sages are in the genus of *Salvia*, which includes *Salvia officinalis* (garden sage) and *Salvia apiana* (white sage), also called California white sage or sacred sage. *Salvia* varieties have long been acknowledged as healing herbs, reflected in the fact that its genus name is derived from the Latin root word “salvare”, which means “to heal” or “to save”. However, there are also other herbs called “sage” that come from a completely different Asteracea family, genus *Artemisia*. e.g. so-called New Mexico sage (*Artemisia tridentata*), and the sage from Dakotas or grey sage (*Artemisia ludoviciana*) (Chevallier, 1996).

All of these plants have been used for medicinal and religious purposes. Burning “smudge sticks” (harvested sage stems tied together) in smudging ceremonies serves as ritual protection against evil spirits, negative thoughts and feelings (Gilmore, 1991; Kindscher, 1992).

Sage is probably the most important plant of the Cheyenne (Hart & Moore, 1992: 90). In the Sioux nation, it is used for keeping sacred objects like pipes or peyote wands safe from negative influences. Ojibwe people used the root as an anti-convulsive, on wounds to stop bleeding, and as a stimulant. The Potawatomi burned the plant to smudge and also used it as a poultice on long-standing sores (Johnston, 1990; Mayrl, 2003; Morgan & Weedon, 1990).

## Sweet grass

Sweet grass (*Hierochloa odorata*) is, together with tobacco, cedar, and sage, one of the four original sacred plants used by First Nations for ritual cleansing. It is an aromatic herb found from Alaska to Labrador, south to Oregon, Nevada, Arizona, New Mexico, South Dakota, Pennsylvania, and Eurasia (Hitchcock et al., 1969; Cronquist et al., 1977).

In the Great Lakes region, sweet grass was historically referred to with the Latin name *Torresia odorata*. There is also a western species of sweet grass (*Hierochloa occidentalis*) (Harrington, 1954; Jepson & Hickman, 1993).

Sweet grass has religious significance for some Native American peoples, e.g. Ojibwe, who use it in prayer, smudging or purifying ceremonies (Densmore, 1974). To prepare sweet grass for burning, usually it is braided after softening in warm water and drying in the sun. Sweet grass braids smoulder and do not produce an open flame when burned. The smoke from burning sweet grass is fanned on people, objects or areas. Individuals usually smudge themselves with the smoke, washing the eyes, ears, heart and body (English, 1982).

The long leaves of sterile shoots are used by Native Americans, e.g. Mohawk, in making baskets (McMullen et al., 1987). Its use in pipe-smoking mixtures has also been reported, where sweet grass is combined with plants such as red osier dogwood (*Cornus sericea*) or bearberry (*Arctostaphylos uva-ursi*) (Wonderley 2010; Wyman, & Harris, 1941; Pavesic, 2000: 327).

Foster & Duke (1990) documented that sweet grass tea was used for coughs and sore throats, chafing, venereal infections, and as an eyewash. Coumarin, the chemical compound present in the roots of *H. odorata*, displays interesting pharmacological properties,

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50 For further details about the chemical compounds of tobacco, see Rodgman, Perfetti (2008: 727). An interesting analysis of the additives used in tobacco products and their toxicity is included in Narby (1999: 219–221).

which have been found to be useful in antitumor and anti-HIV therapy.<sup>51</sup> (Musa *et al.*, 2008; Angerer *et al.*, 1994; Kostova, 2006)

### Creosote Bush

Creosote bush or chaparral (*Larrea tridentata*) is an evergreen resinous shrub which grows in the warm deserts of the southwest United States. It is from four to eight feet tall and has small, dark green leaves and brittle stems. It covers hundreds of square miles in the desert plains and slopes of southern California and Arizona, up to an elevation of five thousand feet (Carter *et al.*, 1997; Palacios & Hunziker, 1972).

The creosote bush is sometimes erroneously referred to as Greasewood, since scientists prefer not to confuse it with two other plants of the same name, *Sarcobatus vermiculatus* and *Atriplex* sp. (Wagner & Aldon, 1978).

Whatever common name is preferred, *L. tridentata* goes back a long time. Creosote bush was recovered from Late Archaic deposits in Hinds Cave, southwestern Texas (Dering, 1979). The fruit was found in Fresnal Shelter near Alamogordo, New Mexico (Minnis, 2004). Complete branches were noted from the Tres Metates rockshelter in Presidio County (Dering, 2006) Hunter *et al.* (2002) discovered its fragments in the Tinajas Altas Mountains, southwestern Arizona. When radiocarbon-dated, these pieces confirmed that the plants had established themselves near the Lower Colorado River more than 5000 BC.<sup>52</sup>

*L. tridentata* is considered sacred, especially by the Pima tribe, a group of Indigenous Americans living in an area of central and southern Arizona. The Pima believed it was the first plant given to them by the Earth Maker as a gift to help the people to maintain their health. Curtin (1984) mentions that the Pima prepared a decoction of the resin to treat colds. Orally administered infusions were also used by this tribe to treat various forms of gastric upset. The powder made from the leaves was applied on the skin and feet as a deodorant.

The Cahuilla of Palm Springs, California, as well as the Hualapai located in northwestern Arizona, inhaled the steam rising from boiling the leaves as an effective decongestant (Watahomigie *et al.* 1982: 28; Hepburn 2012).

Current medicine considers the medicinal qualities of the creosote bush plant as somewhat controversial. Although its constituent nordihydroguaiaretic acid (NDGA) has been reported to possess antioxidant/free-radical scavenging properties and it was proposed as a treatment for cancer, its effectiveness has not been demonstrated in clinical trials (Pelton & Overholser 1994).

Moreover, oral chaparral and NDGA have been associated with cases of hepatitis, cirrhosis, liver failure, renal cysts, renal cell carcinoma, and renal failure (Batchelor, Heathcote & Wanless, 1995; Gordon, 1995; Heron & Yarnell, 2001; Katz & Saibil, 1990; Murthy & Smith, 2010; Smith *et al.*, 1994).

It has been also demonstrated that the chemical compounds found in creosote are toxic to herbivores, and they inhibit the growth of other plants around it (Lira-Saldivar *et al.*, 2006; Mabry *et al.*, 1977).

51 Coumarin (or benzopyrone) is found naturally, although it can be synthetically produced as well. It has a distinctive odour which led people to use it as a food additive, in certain perfumes and fabric conditioners. (Floch, 2002) Due to concerns about coumarin as a potential liver and kidney toxin, its use as a food additive is much restricted, although it is perfectly safe to eat foods that naturally contain the compound (Ehrenforth *et al.*, 1999; IARC 2000: 193–225).

52 *L. tridentata* is a remarkably long-lived plant. One specimen was found to be 12,000 years old (Hunter *et al.*, 2002: 530).

## Peyote

*Lophophora* is a flattened globose plant which belongs to the family of Cactaceae. Its natural habitat is the Chihuahuan Desert area extending from north/central Mexico up to southern Texas (Terry, 2008a, 2008b, 2008c).

Although Czech cacti specialist Vlastimil Hambermann reported in 1975 about *L. fricii* and *L. jourdaniana*, according to the CITES Cactaceae Checklist, the standard of the Washington Convention, genus *Lophophora* (Cactaceae) contains two species only: *Lophophora williamsii* (known as peyote), and *L. diffusa*.<sup>53</sup> (Hunt, 1992)

The phytochemical study of the species determined significant chemical differences among species. The predominant alkaloid in *L. fricii* is non-psychoactive pellotine, the same as in *L. diffusa* – not mescaline, the most abundant peyote alkaloid in *L. williamsii*.<sup>54</sup> (Starha in Grym, 1997)

Mescaline is one of the oldest psychoactive agents known to people. Native American deification of peyote is thought to be about 10,000 years old (Walter & Fridman, 2004: 336).

Radiocarbon dating, thin-layer chromatography and gas chromatography-mass spectrometry analysis of peyote buttons uncovered in Shumla Cave on the Rio Grande in Texas indicated that native North Americans used peyote since at least 5,700 years ago (El-Seedi et al., 2005).

The oldest sacramental use of peyote in North America is considered to be the peyote pilgrimage of the Huichol Indians of Central Mexico to Wirikuta, “the field of flowers”, to gather the cactus and return with it for ceremonial and medicinal use. It may have been in place as early as 200 A.D. (H. Smith & Snake, 1996). Several other Mexican tribes, e.g. the Tarahumara, Cora, and Tepehuán also have a historical relationship with peyote (Noyola, 2008; Artaud, 1976; Benciolini, 2012; Stewart, 1987: 30–42).

There is also some evidence of pre-Columbian use of peyote by the Aztecs, who considered the cactus magical and divine. Peyote then spread from Mexico to North America to other Native American groups, who used it for medicinal and religious purposes. The major diffusion northward of peyote's use occurred in the mid-nineteenth century, when it spread into the Great Plains through the Mescalero Apache and other tribes (Hultkrantz, 1997; Opler, 1938).

In his ethnographic study, Weston La Barre describes how simultaneously with peyote's rapid diffusion, Native American cultures all over the western states were being destroyed and dismantled. Ironically, the deculturizing activities of American soldiers and settlers, stealing traditional customs and practices, contributed to their reinvigoration and to the sacrament's being spread quickly throughout the region (La Barre, 1975: 110–11).

In the last decades of the 19<sup>th</sup> century a new religion based on the ritual consumption of peyote formed in Oklahoma, whose structure and content drew upon earlier ceremonies from northern Mexico and theologies from the southern Plains cultures. On October 1918, under the leadership of Quannah Parker and others, the Native American Church was formally adopted and achieved legal definition (Gray, 2010: 259–273).

Currently, peyotism is practiced in more than 70 different Native American Tribes and the estimates of current membership range from 250,000 to over 400,000 (Smith & Snake, 1996; Steinmetz, 1990: 85).

<sup>53</sup> There are tens, may be hundreds, of names used in the *Lophophora* genus (e.g. *L. koehresii*) and its taxonomy is in dire need of revision and clarification. Acclaimed Czech *Lophophora* specialists, Ing. Rudolf Grym, accepts the more conservative classification including four previously mentioned designations (Grym, 1997).

<sup>54</sup> The relationship between the mescaline content and morphology of *Lophophora* is unknown, because *L. williamsii* specimens with no mescaline content were also found (Aragane et al., 2011).

## Summary

In this chapter, an overview of sacred plants used for religious purposes was presented. An introduction containing a general description of traditional ceremonies (smudging, healing circles, sweat lodges, and pipe ceremony) was followed by an overview of the four original sacred plants used by First Nations (tobacco, cedar, sage, sweet grass). The creosote bush and peyote were included in this section because they deserve special attention not only for their religious, but also medicinal properties.

## Discussion

Various authors (Robbins *et al.*, 2011; Watts, 2001) discuss the possibilities of traditional medicine in treating in the drug addiction, reconsidering their potential in prevention and intervention programmes. An insight into the social and cultural background of North American sacred plants use supports our hypothesis that there are still many opportunities for further applied research in this field, which could be beneficial in decreasing the impact of lifestyle diseases on the efficiency of health care system.

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