Biblical Burseraceae

From a horticultural perspective, the Christmas season evokes thoughts of Christmas trees, poinsettias, and Christmas cactus. But these plants are totally unrelated to the biblical context of Christmas. Indeed, poinsettia and Christmas cactus are native to the New World; poinsettia, *Euphorbia pulcherrima* (family Euphorbiaceae) is from Mexico, and Christmas cacti, various species and hybrids of *Schlumbergera* (= *Zygocactus*) (family Cactaceae) originate from southeastern Brazil. Christmas trees, (usually various species of pine (*Pinus*), spruce (*Picea*), or fir (*Abies*)) occur in the northern hemisphere of the New World and Old World. Although conifers were present in the biblical areas of the Old World, the custom of Christmas trees apparently derives from pagan tradition and probably originated in Germany.

The bible is filled with references to plants because plants were so important in the daily lives of ancient peoples. But by far the dominant botanical references to the birth of Jesus involve the gifts of the Wise Men: gold, frankincense, and myrrh (Matthew 2:11). Most Christians have some glimmer of idea that frankincense and myrrh were derived from plants, but beyond that our understanding of these fabulously valuable gifts is probably pretty meager. Valuable? Yes. It has been said that, at various times in human history, frankincense and myrrh have been more valuable than gold. And, though thought of in biblical terms, both products are still harvested today and are valuable items of trade for indigenous peoples of eastern Africa and Arabia.

The products known as frankincense and myrrh are essentially the natural resins produced in the sap of members of the plant family Burseraceae. This plant family occurs in tropical and subtropical areas in both the Old World and New World. There are about 17 genera and 500-600 species in the family. Most all species are woody perennial trees or shrubs and many species in many genera have fragrant resins in the leaves and/or stems. From a botanical perspective, such resins are known to repel herbivores, and some resinous extracts have insect repellant and insecticidal properties, and are used as such by the indigenous peoples in the areas where these plants grow naturally. In the New World, the most famous of the resins from the Burseraceae are forms of copal, produced from various species of Bursera from Mexico and Central America. *Bursera* is exclusively a New World genus of primarily xeric trees and shrubs, with species extending from the southern United States to South America. Like frankincense and myrrh, copal is used as incense and for ritual and medicinal purposes.

The Old World equivalent of *Bursera*, and very closely related, is *Commiphora*, with about 200 species, found mostly in drier areas of southern and eastern Africa, but ranging into Arabia and as far north as the Indian subcontinent. It is from this genus that myrrh is derived. There are various products that are referred to in the West as myrrh, and these are derived from several species of *Commiphora*. The more...
traditional myrrh, and probably that referred to in the Bible, is sometimes also called medicinal myrrh; it is primarily derived from one species, *Commiphora myrrha* (also known as *C. molmol*), but products generally considered of lesser quality are extracted from other *Commiphora* species, especially *C. habessinica*. In Ethiopia, myrrh is said to be extracted from at least 10 different species. *C. myrrha* is native to the Horn area of eastern Africa (Kenya, Ethiopia, Somalia) and adjacent Arabia (Yemen and southwestern Saudi Arabia). It is a shrub or small tree (to about 15 ft tall) and very spiny; it has peeling bark, the under-bark is green and photosynthetic. The leaves are small and single, or often 3-foliate, with two tiny leaflets at the base of the main leaflet. The flowers are tiny and inconspicuous.

Myrrh is extracted by slicing a gash in the trunk or main stems and allowing the sap to accumulate and dry at the surface. The sap is colorless but hardens to a yellowish gum resin that is only faintly scented. The ancient Egyptians believed that myrrh was an essential element in the embalming process and sent trade missions to the Horn of Africa to bring back material for use in mumification; they eventually established their own plantation at Sinai. For thousands of years myrrh has been known to also have medicinal properties. It is still a very valuable trade item in Somalia, where it is called *molmol*; today it is harvested from wild plants as it has been for millennia.

“Scented myrrh”, or *habak hadi* in Somali, is the gum resin produced by another *Commiphora*, *C. guidottii* (= *C. sessiliflora*). It is still heavily used in Somalia and is a major trade item. It has medicinal uses, for stomach problems and in treating wounds. *C. guidottii* is a small, semi-succulent, sparsely-branched shrub with thickened stems and without spines.

Frankincense is produced from members of the genus *Boswellia*, a small genus of about 20 species of trees and shrubs that ranges from tropical west Africa to the arid Horn of Africa, south into Tanzania and Madagascar, across to the southern edge of the Arabian Peninsula, and north to India. The resins of many species are harvested for various uses, primarily for incense, as a base for perfume, in religious ceremonies, and in traditional healing. But the frankincense of biblical note is derived from *B. sacra* (also known as *B. carteri*) which is found only in Somalia and across the Gulf of Aden in Yemen and Oman of southern Arabia. Like myrrh, frankincense has been in use for millennia and is still in use today and is an important export item, especially in Somalia. In dry weather, boswellias naturally weep droplets of sap which dry on the surface of the plant or on the ground. These natural droplets are harvested. To increase the yield, a slit is made through the bark and the resin accumulates in drops on the surface which dry and are then harvested 2-3 weeks later.

There is a third member of the Burseraceae that may have biblical linkage, though not with the birth of Jesus and therefore not with the celebration of Christmas. In the Old Testament, Jeremiah (8:22) asks “Is there no balm in Gilead; is there no physician there? Why then is not the health of the daughter of
my people recovered?" Gilead is a mountainous region of what is now northwestern Jordan.

Several sources state that the Balm of Gilead is the resinous sap of *Commiphora gileadensis* (= *C. opobalsamum*), and in Ethiopia it is known that a form of myrrh is extracted from this species. *C. gileadensis* is a non-spiny shrub or small tree (to 12-15 ft tall) that occurs in Ethiopia, Sudan, Somalia, and the Arabian Peninsula. It is also found in Egypt, but it may have been brought to that area in ancient times and cultivated for its medicinal properties. Other biblical scholars believe that unrelated plants were the source of Balm of Gilead.

There is very little horticultural use of members of the Burseraceae; this is unfortunate as there are many species that could make interesting landscape plants in mild climates and attractive container plants. Most have very small and rather inconspicuous flowers. Many species are rather shrubby and many, especially commiphoras, are spiny. Many grow in rather desolate parts of the world where travel is difficult or unsafe. However, in the last 10 years or so there has been an increase in interest in commiphoras and boswellias as horticultural subjects. They grow very well in the desert Southwest, especially where there is minimal frost. They also are being grown by succulent plant enthusiasts, often as bonsai subjects. Many species are readily trained by snipping and wiring and look good in bonsai pots. Collected plants, like collected bonsai, have a naturally stunted and weathered appearance which can be quite attractive when staged properly. Most species are adapted to dry climates, and bonsai subjects have the advantage over conventional bonsai in that they can tolerate modest periods of dry soil. They are mostly summer growers (a few exceptions) and winter-dormant (and deciduous). Many plants on the market are sold by succulent plant nurseries as collected material; such plants may be difficult to reestablish. Occasionally, seed-grown plants are available, but seeds are notorious for poor germination. Many members of the Burseraceae root from cuttings, including year-old stem growth barely 2-3 mm in diameter. Both *Boswellia sacra* and *Commiphora myrrha* are now fairly commonly available from specialist nurseries; do an internet search for sources, and don’t forget to look on eBay. Probably about 1/4-1/3 of all *Commiphora* species and nearly all *Boswellia* species are now in cultivation by a handful of specialist growers around the world; a smaller percentage is available from commercial nurseries. Plants should be grown in a well-drained soil mix such as that used for cacti. During the summer growing season they can be watered abundantly (at least weekly). When dormant in winter, they should only be given a light watering every 2-3 weeks. They should be grown in full sun, but can tolerate lower light levels when dormant.

– Dan Mahr, University of Wisconsin - Madison

Additional Information:

- There is much information on the internet about frankincense and myrrh; less about balm of Gilead. Herbalist information can be found at www.botanical.com/botanical/mgmh/mgmh.html.