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Full Length Research Paper

Medicinal properties of *Commiphora gileadensis*

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Commiphora gileadensis **is a plant that was cultivated in ancient times in the land of Israel, particularly in the oases of the Dead Sea Basin — Ein Gedi and Jericho. The plant, also known as balsam, was renowned for the expensive perfume that was produced from it, as well as for exceptional medicinal properties that were attributed to its sap, wood, bark, and seeds. This article presents the historical sources describing these health-related properties and preliminary laboratory studies demonstrating the pharmacological effects of balsam sap. Investigations of the antimicrobial activity of** ***C. gileadensis*** **showed the plant sap inhibitory effect against** ***Bacillus cereus*** **and the blocking of** ***Pseudomonas aeruginosa*** **lectins. These results corroborate the historical sources crediting the usefulness of balsam sap as an antiseptic agent.**

Key words: *Commiphora gileadensis*, balsam, resin, perfume, antimicrobial effects.

INTRODUCTION

Commiphora gileadensis (syn. *Commiphora opobalsamum*) is a tree in the *Burseraceae* family. There are those who identify this plant with the "balm" or "balsam" mentioned in translations of the Bible (Genesis 37:25; 43:11; Jeremiah 46:11, 8:22).

The balm of Judea was described in the Hellenistic and Roman-Byzantine periods as the world's most well-known and expensive perfume. It was recognized by all of the ancient writers – Jewish, as well as Greek and Roman (Feliks, 1995; Stern, 1974-1984) – and its existence and use were also reported in the archeological literature (Amar, 2002; Hepper and Taylor, 2004). The perfume was widely known in the Mediterranean Basin because balsam was cultivated exclusively in the land of Israel or, more precisely, in the oases of the Dead Sea Basin, Ein Gedi and Jericho. It was recognized in ancient times, along with myrrh and frankincense, as a perfume and incense plant that grows in areas with very specific ecological conditions (Groom, 1981). In the Middle Ages, balsam cultivation shifted to Egypt for approximately one thousand years (Milwright, 2001, 2003), but its importance has declined over the last few centuries.

Different proposals have been offered for the identity of balsam (Löw, 1967; Moldenke and Moldenke, 1952). However, from as early as the sixteenth century until modern times, researchers (Alpini, 1718; Feliks, 1995; Hepper, 1992; Linnaeus, 1764) have agreed with confidence that balsam is *Commiphora gileadensis*[1] (=*C. opobalsamum*), which grows wild today in the dry stony hills around the Red Sea, and especially within the borders of Saudi Arabia, Yemen, Oman, and Eritrea (Miller and Morris, 1988; Wood, 1997).

We briefly survey ancient and more recent accounts of the medicinal uses of balsam, and report on the bacterio-logical and biochemical tests that we carried out on the

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[1] In English it is called by several names: balsam of Mecca, balm of Gilead. It is possible that the name balsam also includes the species *Commiphora kataf*, but we will not deal with that here.

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