Diuretic plants in the Bible: ethnobotanical aspects

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Abstract

Besides its religious importance, the Bible, because of its ancient origin represents a relevant witness of the way of life of the people mentioned in it. The Holy Scripture is also the first text revealing the utility of plants for man, as natural sources of food, wood, fibers, oils and medicinal herbs. In the last 60 years, several distinguished botanists have attempted to identify the scientific names of the plants cited in the Bible. Nonetheless, these scholars have provided different lists of plants appearing in the Bible, none of which could be accepted as indisputable. The authors have combined their expertise to focus on the identification of the diuretic plants, through an historical analysis of the literature on this issue.

Key words: Bible, Diuretic plants, History of Herbs

Introduction

The existence of the kidney was well known during biblical time, most likely through the study of the internal organs of the animals killed for sacrifice or for food. However, its role in making urine was not recognized until Second century (about 1,400 years after the Old Testament), when Galen established the connection between the kidney and urine formation. There appear to be 13 references to the kidney in the Old Testament and one reference in the New Testament. Moreover, in the Bible, the kidneys were considered to be associated with the innermost part of the personality. They were viewed as central to the soul and to morality. Most of the biblical understanding of the anatomy of kidneys and their anatomic relationships appears to be derived from observations made in domestic animals [1][2]. Besides the religious importance of the Bible, because of its ancient origin it represents a relevant witness of the way of life of the people mentioned. The Holy Scripture is also the first text revealing the utility of plants for man, as natural sources of food, wood, fibers, oils and medicinal herbs. In the last 60 years, several distinguished botanists have attempted to identify the scientific names of the plants cited in the Bible [3][4][5][6][7][8]. Nonetheless, these scholars have provided different lists of plants appearing in the Bible, none of which could be accepted as indisputable. The present state of research allows the listing of 206 species of Bible plants, of which 95 are recognized by all the contemporary researchers of biblical flora [9]. The manner in which prescientific people selected and manipulated plants for their medicinal and edible plants qualities can be approached from such disciplines as ethnopharmacobotany and the origins of human diet and medicine [10].

The widespread practice of using plants in medicine in Eurasia, especially around the Mediterranean Region, and China, has been transcribed to us through Egyptian pictographs, Babylonian clay tablet ideographs and Vedic Sanskrit. The study of plants in a modern sense began in Asia Minor in the VI century BC, then it moved towards the West, spreading to Greece, and subsequently to the Greek colonies of Southern Italy. The founder of Western Botany was Theophrastus (370-285 BC), who was a philosopher of Lyceum in Athens and became its director after Aristotle retired in 323 BC. The botanical works of Theophrastus, Historia Plantarum and Cause Plantarum, both of which have been preserved intact, deal with almost every aspect of modern botany, from morphology to physiology and pharmacognosy. They represent the apex of ancient thought in this field [11]. In the following centuries botanical science survived almost exclusively as the study of medicinal herbs, with the exception only of Natural History written by Pliny the Elder (23-79 AD), including the teachings of Theophrastus, in which botany was regarded as a subject in its own right and not only from a medical point of view [12]. Our knowledge of Greek pharmacognosy was preserved in Dioscorides’ Materia Medica, written in about 60 AD (and, surprisingly, not quoted by Pliny) which for centuries served as the standard pharmacopoeia of the West [13][14][15]. After Dioscorides the great physician Galen (131-200 AD) made an important contribution to our knowledge of plants, although his interest was exclusively pharmaceutical, listing over 450 herbs, with their medicinal uses and effects in therapeutical methods.

From the second century onwards there followed a period of 1000 years during which empirical data increased, but little progress was achieved either in medical science or in botany. It was only at the end of the Middle Ages that botany became the object of renewed interest. Moreover the study of pharmacognosy received a new impulse. The Renaissance was the period of the great herbals, in which many
medicinal plants were added to the list of herbs of Dioscorides’ classical pharmacopeia and then herbs were, in turn more accurately described in an attempt to establish a correspondence with native plants. These various European developments taken together sparked the beginning of Western cosmopolitan medicine [14][15]. Writings on medicine at this time were used and read for their content, irrespective of the period in which they had been written, most physicians believed that the experience of the preceding generations had to be assimilated if progress were to be achieved. An impressive work was the book: Systema Medicinalium Secundum Systema Linnaei et Usus medici chirurgici et Diätetici, published in folio in both Latin and German by Joseph Jacob Plenck (1735-1807) [Figura 1]. For each plant, the author reported: the name, place of origin, and pharmaceutical role. This work represents perhaps the first successful approach in reporting names, descriptions, habitats and uses of 758 medicinal plants on the basis of the Linnean system of plant classification (1735-1753). One hundred of the 758 species reported by Plenck concern renal therapy [16]. This attitude towards the medicine of the past changed radically in the second half of the nineteenth century, when a new medical science developed and progress was achieved such as had never before been seen. The past seemed dead. To the average physician the history of medicine appeared as a history of errors: nothing could be learned from it, to study it, to read the ancient writers, was a waste of time. Science was worshipped and the best minds turned to the laboratory with great enthusiasm. At the beginning of last century the discovery and use of sulfonamide drugs, antibiotics such as penicillin, and synthetic drugs led to a dramatic decline in the popularity of medicinal plants in therapy. Now the pendulum has swung to the other extreme. A resurgence of interest in the study and use of medicinal plants has taken place during the last two decades. In fact, the importance of plant-derived drugs is underlined by the following data: The World Health Organization (WHO) has estimated that 80% of the world’s population rely chiefly on traditional medicine. Most of traditional therapies involve the use of plant extracts or their active constituents. 25% percent of all prescriptions in the U.S.A. between 1959 and 1990 contained extracts or active principles prepared from higher plants. Similar percentages (22-25%) appeared in certain European countries. With these aspects in mind we joined our expertise for searching the following diuretic plants cited in the Bible.

Allium cepa L. Onion [Figura 2]; Allium porrum L. Leek [Figura 3]; Allium sativum L. Garlic [Figura 4].

Numbers 11,5: We remember the fish, which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions, and the garlics: But our soul is dried away: there is nothing at all, beside this manna, before our eyes.

Amygdalus communis L.(Almond).

Genesis 43: Their father, Israel, said to them, “If it must be so, then do this. Take from the choice fruits of the land in your bags, and carry down a present for the man, a little balm, a little honey, spices and myrrh, nuts, and almonds”.

Anethum graveolens L. (Dill).
Matthew 23:23-24: Woe to you, teachers of the law and Pharisees, you hypocrites! You give a tenth of your spices—mint, dill and cumin. But you have neglected the more important matters of the law—justice, mercy and faithfulness. You should have practiced the latter, without neglecting the former.

Artemisia herba-alba Ass. (White Wormwood).
Amos 5:4: For those who turn justice into wormwood and cast righteousness down to the earth.
Astraragalus gummifera Labill. (Locoweed resin).
Genesis, 37:25: Then, just as they were sitting down to eat, they looked up and saw a caravan of camels in the distance coming toward them. It was a group of Ishmaelite traders taking a load of gum, balm, and aromatic resin from Gilead down to Egypt.
Atriplex halimus L. (Mallow).
Job 30:4: From want and famine they are gaunt. Who gnaw the dry ground by night in waste and desolation, who pluck mallow by the bushes, and whose food is the root of the broom shrub.
Brassica nigra (L.) Koch [Figura 5].
Mark 4:31: It is like a grain of mustard seed, which, when it is sown in the earth, is less than all the seeds that be in the earth: But when it is sown, it grow up, and become greater than all herbs, and shoot out great branches; so that the fowls of the air may lodge under the shadow of it.”
Capparis spinosa L. (Caper) (Figura 6).
Ecclesiastes 12:5: When the almond tree blossoms and the grasshopper drags itself along and caper and the caper berry no longer inspires sexual desire.
Ceratonia siliqua L. (Carob).
Luca 15:16: And he would fain have filled his belly with the carob’s husks that the swine did eat; and no man gave to him.
Cicer arietinum L. (Chickpea).
Isaiah 30,24: The oxen and the asses that till the ground will eat salted chickpea, which has been winnowed with shovel and fork.

*Cinnamomum cassia* Blume (Cinnamon).

Psalms 45,8: All your robes are fragrant with myrrh and aloes and cassia; from palaces adorned with ivory the music of the strings makes you glad.

*Cinnamomum zeylanicum* Nees (Ceylon Cinnamon).

Song of Solomon 4,13: Your plants are an orchard of pomegranates with choice fruits, with henna and nard, and saffron, calamus and Ceylon cinnamon, with every kind of incense tree, with myrrh and aloe and all the finest spices.

*Cistus incanus* L. (Rockrose, Ladanum).

Genesis 37,25: They looked up and saw a caravan of Ishmaelites coming from Gilead. Their camels were loaded with spices, balm and ladanum, and they were on the way to take them down to Egypt.

*Citrullus colocynthis* (L.) Schrad. (Gourd, Wild Colocynthis).

Kings 7,24: Under its brim gourds went around encircling it ten to a cubit, completely surrounding the sea; the gourds were in two rows, cast with the rest.

Commiphora gileadensis L. (Balm).

Ezechiel, 27,17: Judah and the land of Israel, they were your traders; with the wheat of Minnith, cakes, honey, oil and balm they paid for your merchandise.

*Coriandrum sativum* L. (Coriander).

Exodus 16,31: The house of Israel named it manna, and it was like coriander seed, white, and its taste was like wafers with honey.

*Crocus sativus* L. (Saffron) (Figura 7).

Cucumis melo L. (Cucumber).

Numbers 11,5: (See *Allium* spp.).

*Cuminum cyiminum* L. (Cumin).

Isaiah 28,27: For the dill is not threshed with a threshing instrument, neither is a cart wheel turned about upon the cumin; but the dill is beaten out with a staff and the cumin with a rod.

*Cupressus sempervirens* L. (Italian Cypress).

Isaiah,44,14: He cut down cedars, or perhaps took a cypress or oak. He let it grow among the trees of the forest, or planted a pine, and the rain made it grow.

*Eruca sativa* Miller (Rocket).

2 Kings 4,39: And one went out into the field to gather herbs, and found a wild vine and gathered his lap full, and come and shred them in the pot of pottage.

*Ficus carica* L.

Genesis 3,7: Fig leaves are not good enough, as they represent man’s work, and works will not save anyone.

*Hordeum vulgare* L. (Barley).
<table>
<thead>
<tr>
<th>Scientific and vernacular names</th>
<th>Bible</th>
<th>Dioscorides De Materia Medica</th>
<th>Pliny Naturalis Historia</th>
<th>Plenck (Icones plantarum medicinallum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Allium cepa L. Onion</td>
<td>NUMBERS II,151</td>
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<td>Allium cepa Ill-265</td>
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<td>2 Allium porrum L. Leek</td>
<td>NUMBERS II,149</td>
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<td>3 Allium sativum L. Garlic</td>
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<td>Allium Sativum Ill-254</td>
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<td>4 Aloe vera L. Mediterranean Aloe</td>
<td>JOHN II,22</td>
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<td>5 Amygdalus communis L. Almond</td>
<td>GENESIS I,123</td>
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<td>6 Anethum graveolens L. Dill</td>
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<td>7 Artemisia herba-alba Asso White Wormwood</td>
<td>AMOS I,8</td>
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<td>8 Astranagulus gummifera Labill. Locoweald resin</td>
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<td>9 Brassica nigra L. Koch Black Mustard</td>
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<td>10 Capparis spinosa L. Caper</td>
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<td>11 Ceratonia siliqua L. Carob, St John's bread</td>
<td>ISAIAH II,104</td>
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<td>12 Cicer arietinum L. Chiopea</td>
<td>ISAIAH 30,34</td>
<td>I,113</td>
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<td>13 Cinnamomum cassia Blume Cinnamon</td>
<td>PSALMS I,13</td>
<td>I,13</td>
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<tr>
<td>14 Cinnamomum toyanium Blume Ceylon Cinnamon</td>
<td>SONG OF SOLOMON 4,13</td>
<td>I,14</td>
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<tr>
<td>15 Cistus incanus L. Rockrose</td>
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<td>I,67</td>
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<td>16 Citrus colocynthis L. Schrad. Colocynt, Bitter apple</td>
<td>1 KINGS I,74</td>
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<td>17 Commiphora gileadensis L. Myrr tree</td>
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<td>18 Coriandrum sativum L. Coriander</td>
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<td>20 Crocus sativus L. Salfinn</td>
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<td>21 Cucumis melo L Cucumber</td>
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<td>22 Cuminum cyminum L. Cumin</td>
<td>ISAIAH 28,27</td>
<td>XXIV, 180</td>
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<td>23 Cupressus sempervirens L. Italian Cypress</td>
<td>ISAIAH 44,14</td>
<td>I,74</td>
<td>XXIV, 15</td>
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<td>24 Eruca sativa Miller Rocket</td>
<td>2 KINGS 39,41</td>
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<td>Brassica erucia VI-529</td>
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<td>25 Ficus carica L. Fig</td>
<td>GENESIS 3,7</td>
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<td>26 Hordeum vulgare L. Barley</td>
<td>EXODUS 9,31</td>
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<tr>
<td>27 Juniperus communis L. Juniper</td>
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<td>Juniperus communis VII-719</td>
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<td>28 Malva sylvestris L. Mallow</td>
<td>JOB 6,6</td>
<td>III,5</td>
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<td>29 Myrthus communis L. Myrtle</td>
<td>ISAIAH 55,13</td>
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<tr>
<td>30 Nigella sativa L. Black Cumin</td>
<td>ISAIAH 28,25</td>
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<td>31 Olea europaea L. Olive</td>
<td>GENESIS 8,11</td>
<td>XXIII, 73</td>
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<td>32 Phoenix dactylifera L. Date Palm</td>
<td>EXODUS I,52</td>
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<td>33 Populus alba L. White Poplar</td>
<td>GENESIS 30,37</td>
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<tr>
<td>34 Ruta chalepensis L. Rue</td>
<td>LUCA 11,42</td>
<td>XX,139</td>
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</table>

Hexagam 9,31: Now the flux and the barley were battered and ruined [by the hail], because the barley was in the ear (ripe, but soft) and the flux was in bud. *Juglans regia* L. (Walnut).

*Song of Solomon* 6,11: I went down to the grove of walnut trees and out to the valley to see the new spring growth.

*Juniperus communis* L. (Juniper).

Isaiah 41,19: I will set junipers in the wasteland, the fir and the cypress together.

Malva sylvestris L. (Mallow).

Job 6,6: Can something tasteless be eaten without salt, or is there any taste in the water of mallow?

*Myrthus communis* L. (Myrtle).

Isaiah 55,13: Instead of the thornbush will grow the juniper, and instead of the stinging nettle myrtle will grow. This will be for the LORD’s renown, for an everlasting sign, that will endure forever.

*Nigella sativa* L. (Black Cumin).
Isaiah 28,25: The fitches of the Bible, Nigella sativa (fennel or nutmeg flower), were cultivated for their seeds which were used as a substitute for black pepper and as an appetite stimulant. Both fitches and cumin are cited in Isaiah 28:25 in the form of a parable in which a farmer’s orderly methods are compared to God’s plan for sustaining his people: "When he hath made plain the face thereof, doth he not cast abroad the fitches, and scatter the cumin."

*Olea europaea* L. (Olive).

Genesis 8,11: He waited another seven days, and again he sent forth the dove out of the ark. The dove came to him toward evening, and behold, in her beak was a freshly picked olive leaf.

*Phoenix dactylifera* L. (Date Palm).

Hosea 16,27: Then they came to Elim, where there were twelve springs and seventy palm trees, and they camped there near the water.

*Populus alba* L. (White Poplar).

Genesis 30,37: Jacob, however, took fresh-cut branches from poplar, almond and plane trees and made white stripes on them by peeling the bark and exposing the white inner wood of the branches.

*Ruta chalepensis* L. (Rue).

Luke 11:42: "Woe to you Pharisees, because you give God a tenth of your mint, rue and all other kinds of garden herbs, but you neglect justice and the love of God."

According to Timothy Johns, the plants of the Bible bring in to perspective the massive knowledge acquired by our ancestors to retain their health by using the plants around them. People have always been attracted to food rich in calories, fat and protein, yet the biblical admonition "they shall eat the flesh that night roasted, with unleavened bread and bitter herbs they shall it eat" (Exodus 12,8), suggests that unpalatable plants play an important role in our diet [10]. Nature is still man’s greatest chemist, and many unknown compounds present in plants are beyond the imagination of even our best biochemists. Moreover, in the recent past, a combination of data obtained empirically together with the most technologically advanced experimental laboratory and clinical procedures, has given us a number of our most important contributions to our well-being [19][20][21]. The physician, the laboratory scientist and the botanist can now hopefully join forces in a united search for more effective diuretics. Finally, the loss of the empirical wisdom developed from human interactions with the environment over millennia is the loss of a fundamental part of our cultural heritage.

References


