

A survey on herbal galactagogues used in Europe

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RÉSUMÉ

Les plantes galactagogues des *Apiaceae*, des *Fabaceae*, des *Verbenaceae*, des *Urticaceae*, des *Renonculaceae*, des *Lamiaceae*, des *Malvaceae*, des *Polygalaceae* et des *Cupressaceae* sont présentées.

Les plantes galactagogues prises en infusion ou décoction doivent être prises longtemps pour présenter un effet.

Breast-feeding not only supplies the optimum food for the infant but, in the past, offered the only guarantee for survival of the newborn. From earliest times of mankind a multitude of plant galactagogues has therefore been used in the folk medicine of all human cultures. It must be assumed that a good lot of these drugs work but by sympathetic magic. Strikingly, many galactagogues are obtained from plants containing a milky sap. This fact reminds of the medieval "Doctrine of Signatures" by PARACELSDSUS, according to which the plants possess signs that indicate their use. Though this doctrine cannot be scientifically validated, there are indeed several latex-producing plant species that are stated to be quite efficient in promoting lactation. Examples are the North American *Lygodesmia juncea* (Pursh) D. Don (*Asteraceae* family), the "milk medicine" of the Cheyenne Indians (WEINER 1988), and the esteemed Central American *Euphorbia* species *Euphorbia lanifolia*

(BOCK H., 1577, FUCHS L., 1543, LONICERUS A., 1564, MATTHIOLUS P.A., 1562, and others). The largely uncritical recommendation of the drugs listed in them has hitherto lasted in folk medicinal publications (comments in MARZELL, 1923). It is quite doubtful if all of them deserve their ascribed reputation. In some cases, however, the efficacy of the traditional empirical use has experimentally been checked in modern human and veterinary medicine. Analyses of the active ingredients revealed a certain effect of volatile oils and saponins on gland secretion in general, thus also stimulating the mammary glands (GESSNER, 1953). Therefore, several plant species supplying galactagogue drugs are worth to be discussed in the present survey.

I. APIACEAE FAMILY (UMBELLIFERAE)

milk-producing hormone prolactin (PASTEELS, 1975). The influence on milk secretion might further be explained by the structural similarity of anethole and dopamine. Dopamine acts to inhibit the secretion of prolactin, but that effect could be repressed by a successful competition of anethole at the appropriate receptor sites (ALBERT-PULEO, *l.c.*).

Formerly, fennel and anise were often employed in veterinary practice. A study on lactating goats (RINGSEISEN, 1931) showed a certain but varying increase of milk volume and fat content that lasted for weeks after ceasing of anise oil application. Higher doses, however, resulted in a decline of milk amount. A comparable effect is cited by SCHULZ (1929), reporting on a nursing woman who, after the application of a concentrated fennel infusion, experienced a total drying up of lactation.

Two other well-known and widely used drugs, whose volatile oil consists chiefly of carvone (40-80%), are provided by *Carum carvi* L. (common caraway) and *Anethum graveolens*

Its generic name is possibly derived from the Greek words "gala" = milk, and "agein" = to drive (SCHUBERT & WAGNER, 1984). Some feeding experiments with cattle occasionally gave a 30-50% increase of milk amount within 24 hours, some were less significant (cp. KÖHLER, 1939, AUSTER & SCHÄFER, 1954). As to human folk medicine, a salad made of fresh leaves was eaten, or the dried herb was infused (SCHULZ, *l.c.*). In the first half of our century the extract of the drug was employed in pharmacy to produce several galactagogue preparations; a list is given in PEPLAU & SEEL (1941). Clinical studies of a *Galega* preparation (Galegran) showed convincing positive results (TYPL, 1961, HEISS 1968). The increase in milk volume was not due to dilution but concerned also the amount of dry matter. The efficacy of the infusion (0.5-4 g on a cup of water; often combined with fennel and anise) is also verified (KREITMAIR, 1947). The active principle is apparently the content of saponins. WEISS (1985) recommends the harmless tea to nursing mothers, whereas HÄNSEL (1985) points out to possible toxic effects caused by

1969). The Hungarian folk medicine applied the drug to stimulate lactation and cure irregular menstruation (MADAUS, 1938). The active principles of *agnus castus* are well investigated. A combination of iridoids (aucubin, agnusid), flavonoids (casticin, etc.), and volatile oil have antiestrogenic properties and cause an indirectly luteotropic effect by influencing pituitary gland and diencephalon (ORZECOWSKI, 1962, KARTNIG, 1986). One commercial preparation of *agnus castus* is Agnolyt[®]

Ages. MATTHIOLUS and BOCK recommended a decoction in wine. There are also galactagogue homeopathic preparations (KROEBER, 1935). An infusion is made of one teaspoonful of seeds on a cup of boiling water let stand covered for 15 min. The empirical efficacy could be due to volatile oil and saponins. The seeds are also utilized as a condiment.

VI. LAMIACEÆ FAMILY

VIII. POLYGALACEÆ FAMILY

The generic name "Polygala" occurring already in PLINY's works means "much milk". The genus comprises several species that are said to give rise to strong increase of cow milk yields. Representatives are *Polygala amara* L. (bitter milkwort) and *P. vulgaris* L. (cross-flower). DIOSCORIDES attributes *Polygala galactagogue* properties. BOCK recommends a decoction of the flowers in wine or an application in the form of a cataplasm (HOPPE, *l.c.*). Folk medicine chiefly used bitter milkwort. The whole plant was collected when flowering, dried, and used to prepare an infusion. The drug contains saponins and some volatile oil. Its use in modern times has greatly declined, the quite rare species being

XI. NUTRIENTS INFLUENCING LACTATION

High-energy nutrients increase quantity and quality of breast milk, especially in malnourished mothers (JELLIFFE, 1976). Herbal galactagogues added to meat broth can at last partly be counted among such nutrients. Others are mush from barleycorn cooked in milk (WILLFORT, *l.c.*), and gruel (SIEGMUND, 1880). Probably, the same applies to a kind of porridge cooked from the lichen *Cetraria islandica* (L.) Achar. (Iceland moss) that has been utilized in Iceland to promote milk production in pregnant women after delivery (LUDWIG, 1986). Iceland moss is reported to have a strong effect on the milk volume in cattle. BOHN (1913) and KROEBER (1935) recommend the employment of the drug as a nutrient and tonic

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