

Rosmarini folium

Rosemary, *Rosmarinus* (BHP 1983)

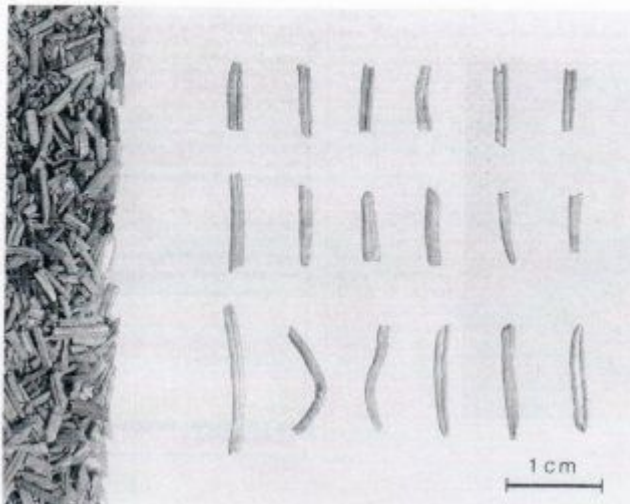


Fig. 1: Rosemary

Description: The up to 3 cm long and up to 4 mm wide leaves are narrowly lanceolate, sessile, leathery, are very brittle, and with a revolute margin (upper rosemary leaves are pubescent on the upper surface, while other leaves are glabrous). They are wrinkled or grooved because of the sunken midrib which projects conspicuously from the densely woolly lower surface.

Odour: Spicy and harsh, almost camphor-like.

Taste: Spicy and harsh, bitter and aromatic, somewhat pungent.

Fig. 2: *Rosmarinus officinalis* L.

A scented, evergreen shrub (ca. 1 m in height) bearing sessile, narrowly linear, almost acicular leaves with a revolute margin and covered with a white felted tomentum. Pale bluish to light bluish violet axillary tubular flowers, with the two stamens projecting far beyond the corolla.



DAC 1986: Rosmarinblätter
St. Zol. 1219.99.99

Plant source: *Rosmarinus officinalis* L., rosemary (Lamiaceae).

Synonyms: Folia Anthos, Folia Rosi mari (Lat.), Rosmarinblätter, Krankkraut-, Kranzenkrautblätter (Ger.), Feuilles de rosmarin (Fr.).

Origin: Native in the Mediterranean region and there cultivated in many countries. The drug is imported from Spain, Morocco, former Yugoslavia, and Tunisia.

Constituents: 1.0–2.5% essential oil, with a main component 1,8-cineole (15–30%), camphor (15–25%), α -pinene (up to 25%) and other monoterpenes (among them bornenol and limonene) [1]. The composition of the essential oil varies according to the stage of development and the origin of the leaves [1–3]. Also present: rosmarinic acid, diterpenoid bitter substances (carnosol (= picrosalvin), rosmanol, rosmadial, etc. [4–6]), triterpene acids (e.g. ursolic acid [4, 7

8)], triterpene alcohols (e.g. α - and β -amyrin, betulin [9]), flavonoids (e.g. luteolin, genkwanin (7-O-methylapigenin), diosmetin, and corresponding glycosides [10]).

Note: The DAB 10 and Ph. Helv. VII monographs relate not to *Rosmarini folium* as such, but rather to rosemary oil (*Rosmarini aetheroleum*), the oil obtained by steam distillation from the leaves and leafy stems.

Indications: Owing to the essential-oil content, as a carminative and stomachic in digestive upsets, flatulence, feeling of distension, but also to stimulate the appetite and gastric secretion. Less often, it is also used as a (weakly active) choleric, which is based on the content of bitter substances. The rise in biliary flow is brought about by a rapidly appearing cholagogic action, followed by a slower choleric effect [12]. Externally, in the form of an oil or ointment, the drug is applied as an analgesic liniment for rheumatism of the muscles and joints, and in the form of the drug or essential oil as an additive to baths for local stimulation of the circulation.

In *folk medicine*, rosemary is put on dressings for poorly healing wounds and for eczema; it is also utilized as an insecticide [2]. The leaves are a valued spice, especially in Italy and France.

The drug is widely employed as a preservative and antioxidant, e.g. for meat and fat; rosmarinol and carnosol are particularly active in this respect [5]. In addition, the plant is an ingredient in the preparation of liqueurs, e.g. Benedictine and Danziger Goldwasser [2].

Side effects: With the application of large amounts of rosemary oil (but hardly of the leaves), there is a danger of gastroenteritis and nephritis [11]. A 15% alcoholic extract showed no signs of toxicity in rats at doses of 2 g/kg i.p. [12]. However, rosemary preparations should not be taken during pregnancy (toxic side effects from components of the essential oil).

Making the tea: Boiling water is poured over 2 g of the finely chopped drug and after 15 min. passed through a tea strainer.

For external use, e.g. for baths, 50 g of the drug is boiled for a short while with 1 litre of water, then covered and allowed to stand for 15-30 min.; the aqueous extract separated from the drug is added to the bath. For making rosemary wine, 20 g drug of the drug is put into 1 litre of wine and left for 5 days with occasional shaking.

1 Teaspoon = ca. 2 g.

Phytomedicines: Especially rosemary oil, in combined preparations for external use as a tincture in the form of ointments, embrocations, and alcoholic extracts; in bath oils

Extract from the German Commission E monograph (BAnz no. 223, dated 30.11.1985)

Uses

Internally: dyspeptic complaints; in supportive treatment for rheumatic disorders.
External use: circulatory disorders.

Contraindications

None known.

Side effects

None known.

Interactions with other remedies

None known.

Dosage

Internally: daily dose: 4-6 g drug, 10-20 drops essential oil; preparations correspondingly.
Externally: 50 g to a full bath; 6-10% essential oil in semi-solid and liquid preparations; other preparations correspondingly.

Mode of administration

Chopped drug for infusions; drug powder, dry extract, and other galenical preparations for internal and external use.

Effects

Experimentally: spasmolytic on the bile duct and small intestine, positively inotropic, increases coronary blood supply.

In man: skin irritant, stimulates the blood circulation (when used externally).



Fig. 3: Much branched covering trichome from the lower surface of the leaf of *Rosmarini affinis*.

and bath additives; internally, as rosemary wine or as the drug extract, in gastrointestinal remedies (stomachics and carminatives).

Regulatory status (UK): General Sales List - Schedule 1, Table A.

Authentication: Macro- (see: Description) and microscopically. The multicellular, much-branched covering trichomes, which are up to 300 µm long (Fig. 3) and which mostly occur in densely tangled masses, are a particularly diagnostic feature. The cracks in the thick cuticle, which are reminiscent of "ice floes", is another important microscopical character. The hypodermis is composed of one to several layers of large irregularly rounded to ovoid cells, with thickened anticlinal walls, which are oriented towards the veins of the leaf. For the detailed microscopy of the powdered drug, see [13].

The DAB 10 TLC identity test for rosemary oil is as follows:

Test solution: 20 µl oil dissolved in 1.0 ml toluene.

Reference solution: 5 mg each of borneol and bornyl acetate and 10 µl cineole dissolved in 10 ml toluene.

Loadings: 10 µl of each solution, as 2-cm bands on silica gel G.

Solvent system: dichloromethane, 2 x 10 cm run.

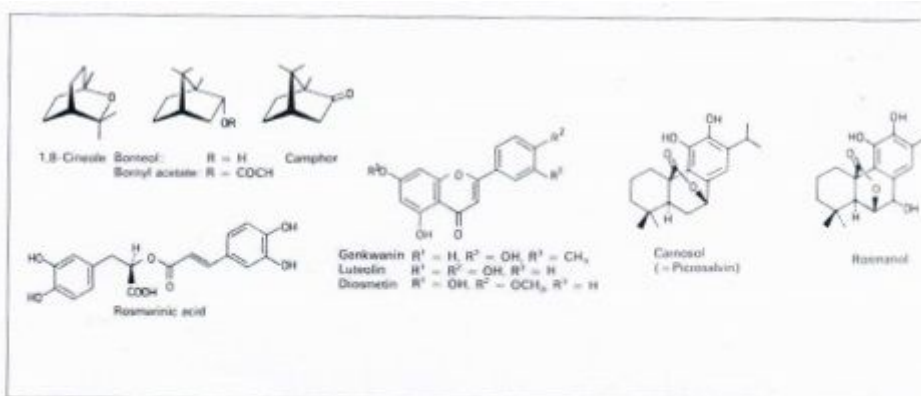
Detection: sprayed with anisaldehyde reagent and heated for 5-10 min. at 100-105 °C while being observed.

Evaluation: in daylight. Reference solution: the bluish green to greyish blue zones of borneol in the lower half and of bornyl acetate just above the halfway mark, and the bluish grey cineole zone about the middle. Test solution: zones similar in position, colour, and of about the same intensity of colour; other, reddish violet zones may be present.

The following method for the TLC examination of rosemary leaf is given in [14], together with coloured illustrations of the chromatograms obtained:

Test solution: 3 g coarsely powdered leaf refluxed for 1 hour with 100 ml diethyl ether; filtrate evaporated to ca. 3 ml and the solution used for chromatography.

Reference solution: 1% methanolic carnosol (picosalvin).



Loadings: 40 μ l test solution and 20 μ l reference solution, on silica gel 60F₂₅₄.

Solvent system: chloroform + methanol (97 + 3), 15 cm run.

Detection: 10% aqueous iron(III) chloride reagent, or 5% ethanolic sulphuric acid and then 1% ethanolic vanillin followed by heating at 110 °C for 5–10 min, while under observation.

Evaluation: Test solution; during extraction, carnosol undergoes ring opening to carnosolic acid – a yellow brown zone at Rf ca. 0.2, becoming greenish brown with iron(III) chloride; a second, intense coloured zone at

Rf ca. 0.4; after the vanillin/sulphuric acid treatment, terpenoid compounds of the essential oil as violet zones. In UV 365 nm light, rosmarinic acid and sinensetin (a flavonoid) as blue fluorescent zones.

The essential-oil content is determined according to standard procedures.

Quantitative standards: DAC 1986; *Volatile oil*, not less than 1.2%. *Foreign matter*, not more than 10% brown woody stems and not more than 2% other foreign matter (the leaves of two other Lamiaceae: *Ledum palustre* L., marsh rosemary, and *Teucrium montanum* L., are mentioned). *Loss on drying*, not more than 10%. *Ash*, not more than 7.0%.

Adulteration: Rarely occurs in practice.

Storage: Protected against moisture light in well-closed glass or metal (or plastic) containers.

Literature

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- [13] B.P. Jackson and D.W. Stenford, *Atlas of microscopy of medicinal plants, culinary herbs and sp.* Bellhaven Press, London, 1990, p. 202.
- [14] H. Wagner, S. Bladt, and E.M. Zgani, *Plant analysis*, Springer-Verlag, Berlin, Heidelberg, York, Tokyo, 1994, p. 142.

Wording of the package, from the German Standard Licence:

7.1 Uses

Internally: flatulence, feeling of distension, and mild orange-like gastrointestinal and biliary spasm.
 Externally: in supportive treatment for rheumatism of the muscles and joints.

7.2 Contraindications

Preparation of rosemary should not be taken during pregnancy.

7.3 Dosage and Mode of administration

Internally: hot water (ca. 150 ml) is poured over 1 tea-spoonful (2 g) of *Rosemary* and after 15 min. passed through a tea strainer.

Unless otherwise prescribed, a cup of the freshly prepared tea is drunk three or four times a day between meals.

Externally: unless otherwise prescribed, ca. 100 g of *Rosemary* are added to 20 litres of water in which to bathe the affected part(s).

7.4 Note

Store protected from light and moisture.