

BUDDLEJA SALIGNA HERBA

Definition

Buddleja Saligna Herba consists of the fresh or dried leaves of *Buddleja saligna* Willd. (Buddlejaceae).

Synonyms

Chilianthus olearaceus Burch.

Vernacular names

Wild elder, witolienhout (A), mothlware (Ts); umgeba (Xh); umceba, iggeba elimhlope (Z)

Description

Macroscopical ¹



Figure 1: Live plant

Evergreen large shrub or small tree 0,5 - 7m in height; **leaves** petiolate, linear to lanceolate, grey-yellow on underside due to a dense covering of stellate scales, 1.5-10 x 0.2-1.5cm, margin entire inrolled, veins anastomosing to form a line parallel to margin; **flowers** (Aug-Jan) borne in 3-flowered velvety cymes, small (2mm or less), bowl shaped with anthers exserted, cream with orange throat, faintly scented.



Figure 2: line drawing

Microscopical

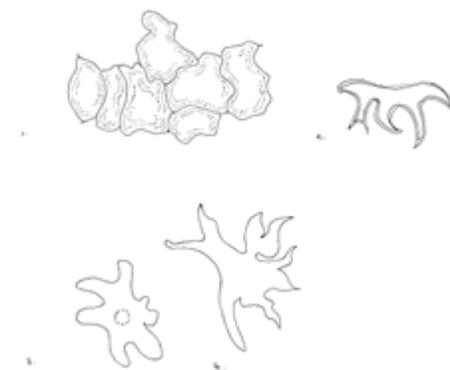


Figure 3: microscopical features

Characteristic features are: the epidermal cells of the upper leaf lamina with thin sinuous walls and striated cuticle (1); the very numerous translucent stellate scales of the lower leaf epidermis (2), loose in the powdered drug.

Crude drug

Gathered as needed or available in the marketplace as bundles of leafy twigs; colour grey-green, odour faint pleasant; texture leathery.

¹ Verdoorn, I. (1963). The genus *Buddleja*. Flora of Southern Africa **26**: 160-168.

Geographical distribution

Occurs in a variety of habitats (dry hill slopes, scrub, forest margins, river courses, coastal bush) in most provinces of South Africa.

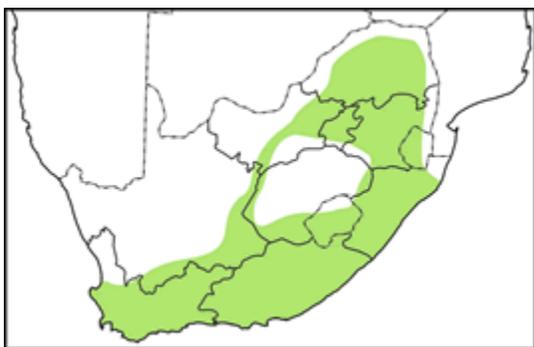


Fig. 4: distribution map

Quality standards

Identity tests

Thin layer chromatography on silica gel using as solvent a mixture of toluene:diethyl ether:1.75M acetic acid (1:1:1). Reference compound cineole (0,1% in chloroform). Method according to Appendix 2a. (figure 5) R_f values of major compounds: 0.43 (purple); 0.66 (brown); 0.69 (mauve); cineole: 0.71 (blue-purple)

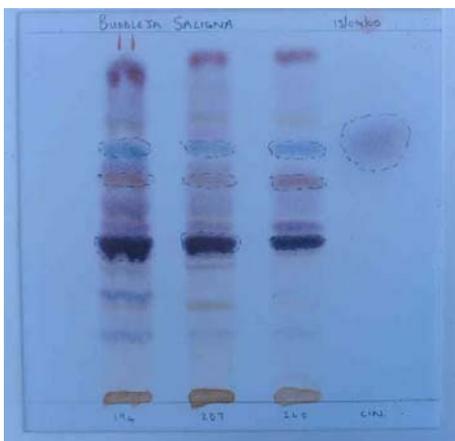


Figure 5: TLC plate.

HPLC on C_{18} column, method according to Appendix 2b.

Major compounds:

Methanol extract: (figure 6)
Retention times (mins): 14.42; 20.63; 21.58; 25.69

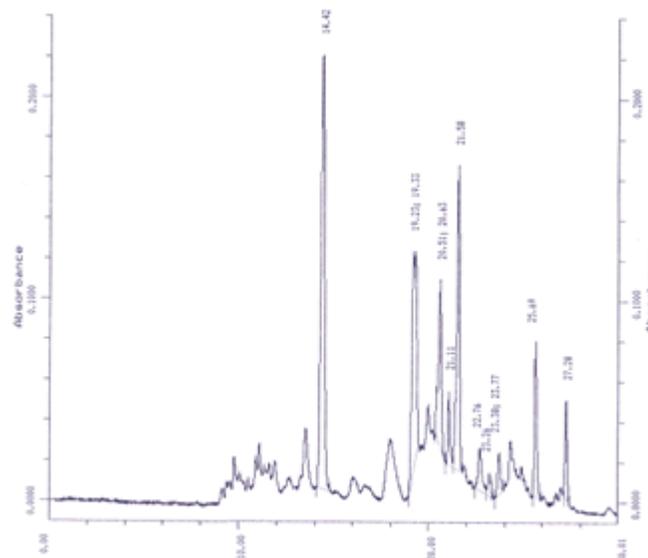


Figure 6: HPLC spectrum

Ethanol (70%) soluble extractive value: not less than 15.5% (range: 15.65-19.19%)

Purity tests

Assay

Not yet available

Major chemical constituents

Phytochemical tests in our laboratories indicated the presence of alkaloids (2/3 coll.), saponins, tannins and reducing sugars, but not of cardiac, cyanogenic nor anthraquinone glycosides. There is little in the published literature dealing with the secondary chemistry of *Buddleja saligna* but studies on *B. davidii* have demonstrated the presence in stem of phenylpropanoid glycosides e.g. verbascoside as well as a number of lignans and neolignans.^{2 3} The same studies suggested, although not unequivocally, the presence of alkaloids in *B. davidii*. The family Loganiaceae, of which Buddlejaceae was formerly a part, is well known for the presence of indole alkaloids and the detection of alkaloids in 2/3

² Houghton, P.J. (1984). Lignans and neolignans from *Buddleja davidii*. *Phytochemistry* **24**(4): 819-826.

³ Houghton, P.J. (1985). Phenylpropanoid glycosides in *Buddleja davidii*. *Journal of Natural Products* **48**(6): 1005.

collections of *B. saligna* merits further investigation. The genus is known to contain iridoids, acetylated iridoids, saponins, sesquiterpenoids and flavonoids in addition to the compounds mentioned above^{4, GR⁹ 6}

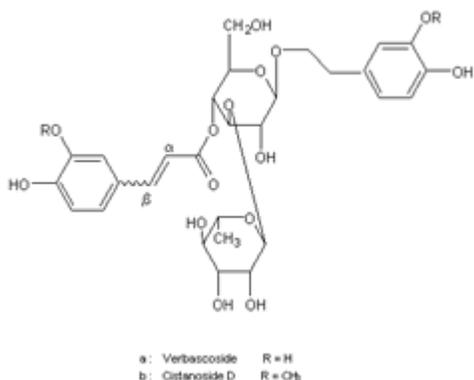


Figure 7: chemical constituents

Dosage forms

An aqueous leaf infusion is taken orally or applied externally as a lotion or wash.

Medicinal uses

Used for the treatment of coughs and colds by the Zulu, Tswana and Kwena people and in the Montagu district for diabetes and tuberculosis, as well as for thrush and sores. GR 1, 12, 20

Pharmacology/bioactivity

No formal pharmacological studies are documented for this species. Many *Buddleja* species are however used as traditional medicines, in China and elsewhere. The results of a recent *in vitro* study⁴ showed that an aqueous extract of one of these, *B. globosa*, used traditionally in the form of a poultice or lotion to promote wound healing, was able to stimulate the growth of dermal fibroblasts and reduce inflammation (two aspects of the cascade of events associated with the wound healing process). Activity in

⁴ Houghton, P. J. (1999). Wound-healing properties of *Buddleja globosa* (Buddlejaceae). Paper presented at Congress: 2000 Years of Natural Products Research: past, present and future, Amsterdam.

the study was attributed to flavonoids (luteolin, 6-hydroxyluteolin) and phenylethanoids (verbascoside, echinacoside) isolated from the aerial parts of *B. globosa*. Investigation of the secondary chemistry and bioactivity of *B. saligna* may demonstrate a similar mode of action.

In a recent review of the bioactivity of *Buddleja* species⁵, anti-inflammatory, antifungal and wound-healing properties are noted for members of the genus used in traditional medical practice.

Contraindications

None recorded.

Adverse reactions

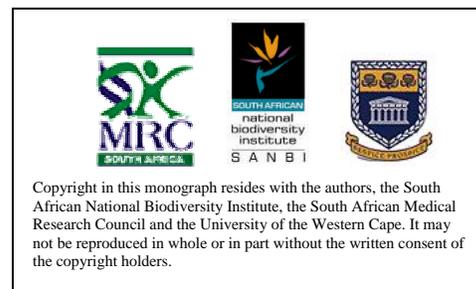
None known

Precautions

No special precautions

Dosage

To be determined



⁵ Houghton, P.J. and Mensah, A.Y. (1999). Biologically-active compounds from *Buddleja* species. Pp. 343–368 in: Romeo, J.T. (Editor), *Recent Advances in Phytochemistry, Vol. 33: Phytochemicals in Human Health Protection, Nutrition, and Plant Defense*, Kluwer Academic, New York.

⁶ Houghton P. J., Mensah, A. Y., Iessa, N. and Yong Hong, L. (2003). Terpenoids in *Buddleja*: relevance to chemosystematics, chemical ecology and biological activity. *Phytochemistry* **64**(2): 385-395.