

Distribution: Khovs., Khent., Mong-Dag., Khyang., Khovd, Mong. Alt., Dor. Mong.

Habitat: Coniferous and mixed forests, birch stands [2–5].

Parts used: Leaf

Traditional Uses: The taste is bitter and hot, and the potency is cool and blunt. It is used for the following: strengthening bones and sinews, for rheumatism, and bone and joint pain, inflammatory diseases of the eye, and as an antibacterial. It is an ingredient of the following traditional prescriptions: Braib-17, Jamba-6, Marbo-3,4, Marchin-13, Khar baivan-3, Shunkhan-2, Briyaga-13, Buur ar ur-10, Arur-4, Brega-13, Braivy-13, Jitser-8, and Sarichun [5–9].

Microscopic characteristics: Leaf is uniform structure. Spongy parenchyma consists of 4–6 layers cells containing chlorophyll. Upper epidermis thick and wavy-walled. Anomocytic stomata occur only lower epidermis. Vascular bundle is collateral type [10].

Chemical constituents: Triterpenoids: taraxasterol, iridoid: monotropein, polyphenols: homoarbutin [11,12], galloylhomoarbutin, (+)-catechin, (–)-epicatechin gallate, procyanidin B1, B3, B2-3'-O-gallate, B2-3,3'-di-O-gallate, hyperin and hyperin-2''-O-gallate [13].

Qualitative and quantitative assays: Flavonoids are identified by cyanidin reaction and TLC. The following is a suitable TLC procedure to identify flavonoid: silica gel, ethyl acetate-acetic acid-formic acid-water (100:11:11:26) solvent system, detection reagent: 1% ethanol solution of iron (III) chloride. The flavonoid spots with the same R_f as reference quercetin is observed under UV lamp and after spraying with detection reagent. Total flavonoid content is determined by spectrophotometry at 256 nm and calculated as luteolin. Tannins in rhizoma and leaves are identified by the reaction with ammonium iron (III) sulphate and titrated with potassium permanganate [14].

Qualitative and quantitative standards: Loss on drying, 9.5%. Ash, not more than 7.0%. Organic matter, not more than 1.0% and mineral matter, not more than 1.0%. Total flavonoid content calculated as quercetin, not less than 3.0%. Tannin content, not less than 12% [14].

Bioactivities: Haemostatic, spasmolytic, and anti-inflammatory [15].