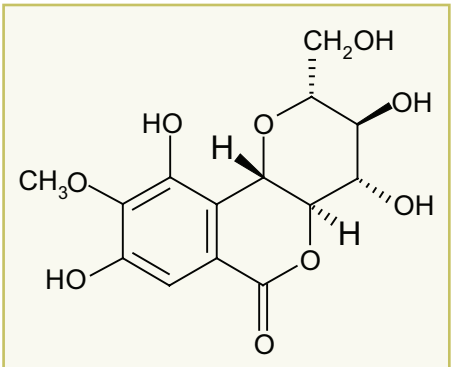
Habitat: Cedar forests in alpine belt [2–4].

Parts used: Leaf and root/rhizome.

Traditional Uses: The taste is sweet and astringent, and the potency is hot and light. It is used for the following: treating typhoid and lung fever, treating disorders of the stomach and intestine, treating diarrhea, and for inflammation of the lung. It is an ingredient of the following traditional prescriptions: Valo-25, Gabed-6, Jisergundel, Loman jalbo, Srolo-3, and Chisron dermon-9 [4–8].

Chemical constituents: Rhizome contains tannins, phenol carboxylic acids and their derivatives, (+)-catechin and catechin gallate [9], isocoumarin: bergenin [10]. Leaves contain 6–30% tannins [11], 12.18% arbutin, hydroquinone [12], rododendrine [9], pectin: bergenan [13], catechin: gallocatechin, catechin gallate [11], flavonoids: quercetin, kaempferol, leucoanthocyanidin: leucocyanidin, leucdelifinidin [9,14], coumarin: ellagic acid, isocoumarin: bergenin [9,12].



Bergenin

Qualitative and quantitative assays: Tannins in the rhizomes and leaves are identified by reaction with ammonium iron (III) sulphate and titrated with potassium permanganate. Arbutin in the leaves gives a dark brown precipitate with iron (II) sulphate. Arbutin is determined by titration using iodine as the titrant and starch as the indicator [15].

Qualitative and quantitative standards:

For rhizomes: Loss on drying, not more than 13.0%. Ash, not more than 10.0%. Organic matter, not more than 0.5% and mineral matter, not more than 1.0%. Tannins 15–17% [16].

For leaves: Loss on drying, not more than 12.0%. Ash, not more than 4.0%. Organic matter, not more than 0.5% and mineral matter, not more than 0.5%. Tannins, not less than 15% and arbutin, not less than 5% [15].

Bioactivities: Anti-inflammatory, antibacterial, anti-ulcerous, antidiarrheal [9].