Melissa offcinalis L.
Lamiaceae

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Synonyms

***Melissa offcinalis* L.:** *Melissa bicornis* Klokov

Local Names

Bolivia: Toronjil (Spanish) (Macía et al. 2005; Justo and Moraes 2015; Bussmann et al. 2016); **Colombia:** Melissa, Toronjil (Spanish) (Bussmann et al. 2018); **Ecuador:** Toronjil (spanish) (de la Torre et al. 2008); **Peru:** Toronjil, Melissa (Spanish); **English:** Lemon balm

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Botany and Ecology

Perennial, 30–125 cm high, with soft short hairs all over; stems erect, branched, quadrangular; leaves petiolate, ovate, up to 6 cm long, 3 cm broad, the upper cuneate, the lower cordate at base, crenate-toothed, subglabrous, sometimes with glandular hairs or punctate glands beneath; verticillate 3–5–10 flowered, distant, in the axils of upper leaves; bracts elliptical or oblong, petiolate, not exceeding the flowers; calyx campanulate, hairy, the upper lip broad, flat, submarginate, with 3 short acuminate teeth, the 2 lower teeth triangular-lanceolate; fruiting calyx 5-angled; corolla whitish or pinkish, 13–15 mm long, one-and-a-half times to twice as long as calyx, glabrate; upper lip almost flat; stamens 4, the lower longer, curved, and connivent under the upper lip; nutlets ovoid, strongly narrowed toward base, brownish, smooth, 1.5–2 mm long. Flowering June–September. Ural, Caucasus, Middle Asia, forest fringes, in wet shady ravines, near settlements, as weed, up to the middle mountain belt (Macbride and Weberbauer 1936–1995) (Figs. 1 and 2).

Phtochemistry

Essential oils (geranial, citronellal, caryophyllene, limonene, linalool, linaloolene, rosene, isogeranial, pulegol, isopulegol, methylsalicylate, safranal, terpineol, lavandulylvalerate, farnesene, linalyl acetate, fellandre), vitamins (C, B1, B2, carotene), phenulcarboxylic acids (rosemary, coffee, chlorogenic, protocatechal, ferulic), flavonoids (luteoline, ramranazine), coumarins, triterpneoids (ursolic acid), fatty acids (palmitic, stearic, oleic, linoleic, linolenic).

Local Medicinal Uses

Bolivia: Stems and leaves, fresh or dried, are used to treat heartache, epilepsia, nerves, nausea, and as relaxant (Macía et al. 2005; Justo and Moraes 2015; Bussmann et al. 2016), also for heart problems, colds, nerves, stomach problems, diarrhea, and headache (Quiroga et al. 2012). **Colombia:** The Lemon balm is a cardiac tonic, with sedative and calming properties of the nerves (tranquilizer). The plant is used to calm the nerves, relieve spasmodic and menstrual pains, reduce fever, and especially as antiflatulent and against colic; It is also used in the treatment of intestinal conditions, dyspepsia, stomach pain, and nausea. Externally it is used in cases of bad breath and insect bites. The leaves and stems in infusion are used as antispasmodic, against excessive sweating, as a digestive, and in general in nervous disorders. The hot infusions of Toronjil are also used to facilitate digestion and menstruation (Díaz 2003; Fonnegra-Gómez and Villa-Londoño. 2011; Fonnegra-Gómez et al. 2012; García Barriga 1975; Giraldo Quintero et al. 2015; Martínez Correa and Montes Martínez 2017; Ministerio de Protección Social 2008). Stems and leaves are used as sedative, for nerves, and heart diseases; the leaves serve as

Fig. 1 *Melissa officinalis* (Lamiaceae), garden, Chicani, Bolivia. (Photo R.W. Bussmann and N.Y. Paniagua-Zambrana)

Fig. 2 *Melissa officinalis* (Lamiaceae), garden, Chicani, Bolivia. (Photo R.W. Bussmann and N.Y. Paniagua-Zambrana)

tranquilizer, for spasms, indigestion, flatulence, and digestive problems (Bussmann et al. 2018).

Ecuador: The whole plant, fresh or dried, is used to treat nerves, nervous system, sadness, depression, and heart pain (Béjar et al. 2001; Bussmann and Sharon 2006a, 2007a). The crushed leaves are applied as a poultice to treat insect bites and animal bites, to reduce the inflammation of tumors, and to accelerate the healing of wounds and prevent them from becoming infected. Tea prepared with the leaves is used as a sedative and to calm the nerves, to treat fever, flu, cough, and to regulate menstruation (Shuar-Napo). The infusion of the plant (especially leaves and branches) is used for the hangover, stomach pain, and with salt and lemon, for the colerín (Kichwa of the Sierra-Imbabura; unspecified ethnic group – Imbabura, Chimborazo, Cañar). The leaves and flowers, in infusion, are used to treat inflammation and eye pain, fainting, decay and nervous conditions such as depression (Mestizo-Pichincha; unspecified ethnic group – Carchi, Imbabura, Chimborazo, Loja). The leaves and branches, in infusion, are used to treat palpitations, weaknesses, and heart pain (Kichwa of the Sierra-Imbabura; unspecified ethnicity – Imbabura, Pichchin, Chimborazo). Used as antispasmodic (unspecified ethnic group – Azuay, Cañar). It is used as a digestive and calming (unspecified ethnic group – Other (Coast Region)). It serves as a general health tonic (unspecified ethnicity – Imbabura). It is used to treat flatulence and headache (unspecified ethnicity – Loja) (de la Torre et al. 2008). Social: The juice of the leaves is used to treat grief (Kichwa de la Sierra-Imbabura). The plant is used to cure fright (unspecified ethnicity – Azuay) (de la Torre et al. 2008). **Peru:** The whole plant, fresh or dried, is used to calm ill-mannered children, pain of love, nerves, insomnia, heart, nervous system, and tachycardia (Bussmann and Sharon 2006b, 2007b, 2015a, b; Bussmann et al. 2010a; Monigatti et al. 2013). It is sometimes sold in local markets (Bussmann et al. 2007, 2008a, 2009; Revene et al. 2008) and has shown antibacterial activity (Bussmann et al. 2008b). Sometimes it is used as ingredient in herbal mixtures (Bussmann et al. 2010b, 2011a, b) and may be added to emollients (Bussmann et al. 2015).

Local Food Uses

Ecuador: With the branches, aromatic waters are prepared (Mestiza-Azuay; unspecified ethnic group – Imbabura, Pichincha, Loja) (de la Torre et al. 2008).

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