

COTONEASTER DAMMERI

Cotoneaster (Rosaceae)



Traditional herbal medicines have become a subject of global importance with both medical and economic implications. The regular consumption of herbal drugs has led to serious concerns regarding their quality, effectiveness, and safety. Thus, relevant scientific

evidence has become an important criterion for the acceptance of traditional health claims. The genus *Cotoneaster* Medikus provides numerous species traditionally used in Asian medicine for the treatment of haemorrhoids, diabetes, and cardiovascular diseases. This review summarises the achievements of modern research on the *Cotoneaster* taxa, including ethnobotany, phytochemistry, pharmacology, and toxicology. To date, more than 90 compounds have been isolated or analytically identified in *Cotoneaster* leaves, fruits, flowers or twigs. These phytochemicals are categorised into flavonoids, procyanidins, phenolic acids, cotonefurans, cyanogenic glycosides, triterpenes, sterols, fatty acids, volatile compounds, and carbohydrates, and many of them are responsible for *Cotoneaster* pharmacological properties including antioxidant, anti-inflammatory, antimicrobial, antiparasitic, hepatoprotective, anti-diabetic or anti-dyslipidaemic activity. In order to ensure the safety of pharmaceutical applications, the potential toxicity of *Cotoneaster* extracts has also been investigated. In conclusion, this systematic review provides an important reference base for further study into the various medical applications of both the dry extracts and pure isolates of *Cotoneaster* species.

Herbal plants, used since ancient times in virtually all cultures as a source of medicines, are of great importance to the health of individuals and communities. Traditional medicine is used in all parts of the world and has a rapidly growing economic importance, mainly due to use of both medicinal plants and their standardised dry extracts. The medicinal use of plants of the family Rosaceae is widely described in



the scientific literature [1]. This family, distributed across approximately 100 genera with almost 3100 species, is one of the most economically important families, comprised of fruit, nut, ornamental, aromatic, herbaceous, and woody plants. Edible Rosaceae crops domesticated for human consumption include apple, strawberry, pear, peach, plum, almond, raspberry, sour cherry, and sweet cherry. Other species, with ornamental and medicinal value, are rose, hawthorn, cotoneaster, potentilla, and pyracantha.

Cotoneaster Medikus, one of the representatives of the Rosaceae family, comprises about 500 species with a Eurasian distribution; the centre of their diversity is in the mountains of China and the Himalayas. This genus, comprising mainly shrubs and small trees, provides popular ornamental plants that are widely grown in landscape architecture due to diversity of their forms, glossy green leaves, abundant flowers, and attractive fruits. Many Cotoneaster shrubs vary in the plant form

from the massive, erect *C. bullatus* that grows up to 5 m tall, to regular *C. nanshan*, to low, ground-hugging prostrate plants such as *C. horizontalis*, with twigs in a distinctive fish-bone pattern, to the ground cover *C. dammeri* . Cotoneaster leaves are alternate on the twigs, usually arranged in two rows, dark green on the top, with fine hairs underneath; the margin of the leaf blade is entire. The flowers are white or slightly pink, solitary or densely clustered at the branch tips. The morphological structure of flowers forms the basis for the classification of Cotoneaster members into two subgenera: *Cotoneaster*, in which pink or red flowers open successively over an extended period and the petals are erect , and *Chaenopetalum*, in which mostly white flowers open simultaneously, with spreading petals . The fruits are orange to red or black pomes, with one to five seeds, and ripen in September to October. In the autumn, the leaf and fruit colour draws attention, with dark green leaves and bright red fruits giving a showy blend of orange and red, which is a desirable decorative value of Cotoneaster species

