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Guest Editorial

Arbutus pavarii Pamp. – An updated profile



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A *Arbutus pavarii* Pamp. (fam. Ericaceae), commonly known as “Shmeri” or “Libyan Strawberry”, is an endemic Libyan medicinal plant, currently considered as an endangered species of shrub or tree (Kabieli et al., 2016), and has attracted public attention in relation to its conservation. The distribution of this important forage species of plant for honeybees to produce specific honey type is very much confined to the Al-Akhdar mountainous region in Libya. In addition to its ecological importance in honey production, *A. pavarii* has been used in the Libyan traditional medicine for the treatment of various human ailments including gastritis and kidney diseases (El Hawary et al., 2016). Berries of this plant are a good source of minerals, nutrients, carbohydrates and most importantly, vitamin C. The uses of its leaves, fruits and bark in the tanning process, and branches as a fuel are among other economic importance of this plant (Alsabri et al., 2013). Limited phytochemical studies on this plant revealed predominantly the presence of simple phenolics e.g., arbutin, gallic acid and polyphenolics, including flavonoids and tannins e.g., apigenin, epicatechin, hesperidin, kaempferol, naringin, quercetin and rutin, and some triterpenes and sterols (Alsabri et al., 2013; Asheg et al., 2014; El Hawary et al., 2016; Buzgaia et al., 2020). Rutin was found to be the most abundant flavonoid, while kaempferol was the least in the aerial parts of *A. pavarii*. Arbutin (Fig. 1) appears to be the chemotaxonomic marker compound of the genus *Arbutus* L., as this compound is present in other species of this genus.

Despite its uses in the Libyan traditional medicine, there are only a few published reports depicting mainly its antioxidant, antimicrobial and cytotoxic activities available to date (Hussain and Tobji, 1997; Hasan et al., 2011; Alsabri et al., 2013; El Hawary et al., 2016).

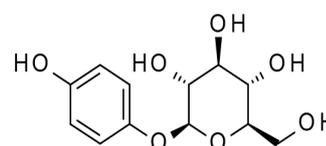


Fig. 1. Structure of arbutin.

While the antioxidant activity of this plant could be linked to the presence of high level of simple phenolic and polyphenolic compounds, any link between the secondary metabolites produced by this species and antimicrobial activity, mainly against *Escherichia coli*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*, is still to be established. However, a recent study revealed the anti-methicillin-resistant (anti-MRSA) activity of *A. pavarii* and LC-MS/MS-based profiling of the antimicrobial fractions led to tentative identification of 28 compounds, mainly of phenolic nature (Buzgaia et al., 2020). Preliminary cytotoxicity study was carried out only with crude extracts against a few human cancer cell lines, but not with isolated compounds. In fact, there has been no attempt reported to date to carry out bioassay-guided isolation of active compounds, and subsequent assessment of bioactivity of purified compounds. An interesting study was performed to determine the effect of this plant on performance and coliform count of 1260 one-day-old male Cobb broiler chickens (Asheg et al., 2014). The dietary treatments incorporated a basal diet with no additive (control) and other dietary treatments with (*A. pavarii*) at the rate of 0.5 g and 1 g/kg of basal diet. The study concluded that *A. pavarii* had a significant effect on body performance of broiler chickens compared to the control, thus emphasizing the potential biotic role as well as immune modulating effects of this

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plant on treated birds (Asheg et al., 2014). During the assessment of antifertility activity of this plant, it was concluded that this plant might induce spermicidal activity and interfere with testicular structures rendering spermatogenic arrest, and the activity might be linked to its phenolic and polyphenolic compounds (Alghazeer et al., 2020).

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