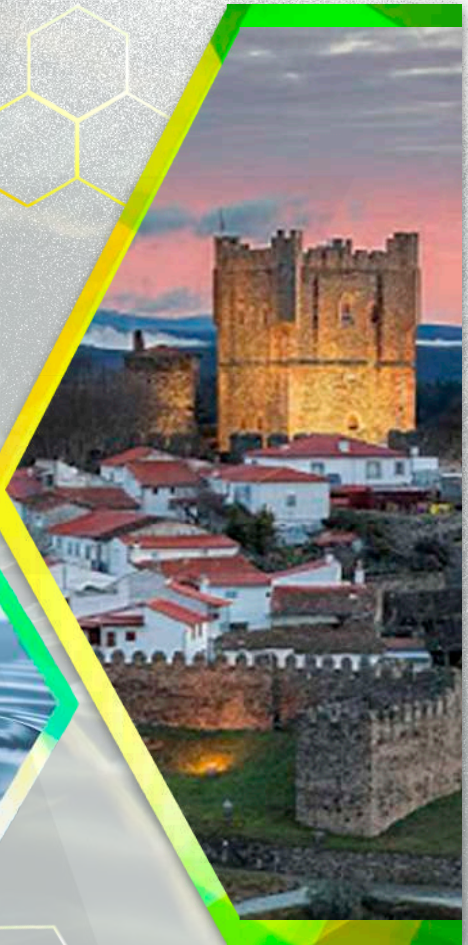




Natural products application: Health, Cosmetic and Food

Provided by nature, adapted scientifically for industry



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PCH-14

RELEVANCE OF HORSE CHESTNUT (*AESCULUS HIPPOCASTANUM* L.) SAPONINS IN HEALTH AND COSMETICS

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Saponins are steroidal glycosides or polycyclic terpenes resulting from the secondary plant metabolism and have many beneficial characteristics and applications. They can be used to fight and cure many diseases and health issues, as well as in cosmetics and as natural alternatives for food preservation and packaging [1,2]. Due to the finite resources our planet can provide and the increasing potential for saponins in various sectors, it is necessary to find alternative sources of these pharmacologically active high-added values compounds. This study aims to provide an overview of the bioactive properties of saponins that can be found in *Aesculus hippocastanum* L. The saponins found in this plant have a trisaccharide chain at C3 of the aglycone and a β -glucopyranosyl unit attached at C4 of the glucuronic acid. Aescin (Figure 1) is the main active component and responsible for most of its medicinal properties [2,3]. These saponins have already been described as more antioxidants than vitamin E and capable of protecting cells from free radicals and reactive species [2,4]. These compounds shown positive effects on venous insufficiency and associated conditions, reduce capillary fragility, and help prevent the leakage of fluids into surrounding tissues, thus presenting beneficial effects on human skin [2]. Due to these properties, *A. hippocastanum* saponins can be used in cosmetic formulations with anti-aging capacity [2]. The bark of this plant has also been used to treat dermatitis, while the leaves and seeds are used due to their anti-inflammatory effects [3]. β -Aescin (the main active compound of aescin) is a natural inhibitor of leukemic cell proliferation and may be useful for new anti-leukemic drugs [5]. β -Aescin has also been reported to be effective for the treatment of colon cancer [4]. Therefore, given the high added-value of aescin, it would be interesting to develop an extraction method that maximizes the recovery of these compounds from this plant in a sustainable way to promote resource use efficiency.

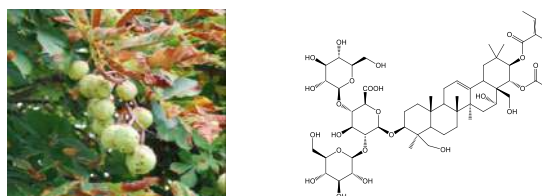


Figure 1: *A. hippocastanum* fruits (<https://flora-on.pt/>) and chemical structure of the main component of aescin.

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