



University of Belgrade - Faculty of Agriculture

1st European Symposium on
Phytochemicals in Medicine and Food
(1-EuSPMF)

Book of abstracts

Belgrade, Serbia
7-9 September 2022

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Medicine and Food

1-EuSPMF



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II - Bioactive compounds and human health

III - Medicinal herbs and spices

IV - Herbal medicines in disease prevention and treatment

V - Novel perspectives of phytochemical use in contemporary medicine

VI - Farm to fork

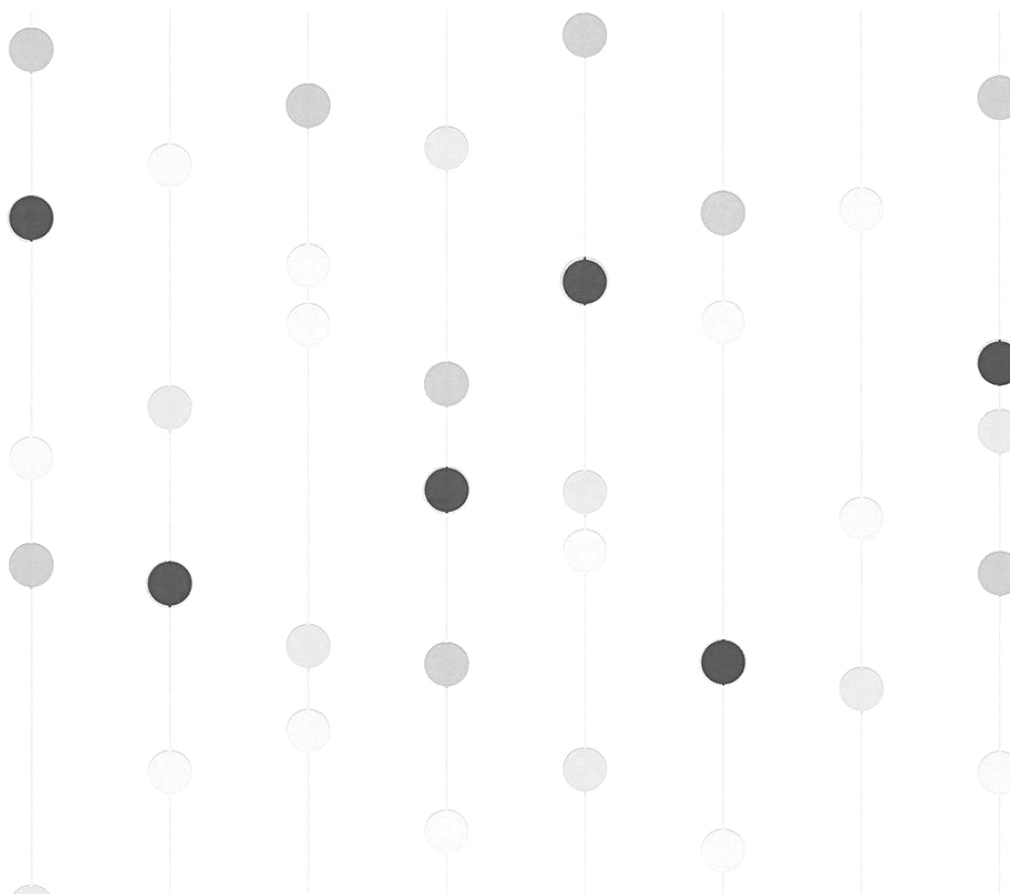
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Abbreviations:

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I_PP6_HPLC-DAD-ESI/MS profiling of phytochemicals in *Aesculus hippocastanum* fruit

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Aesculus hippocastanum L. (Sapindaceae) is a large, broad-crowned deciduous tree cultivated as an ornamental in urban areas in the Northern hemisphere. Among the scientific community, it is known mainly for steroidal glycosides, among which aescin is the main active constituent and responsible for most of its medicinal properties [1,2]; but other bioactive compounds such as flavonol glycosides have also been described in this plant [3]. In folk medicine, while the bark has been used to treat dermatitis, the leaves and seeds are used for their anti-inflammatory effect [2]. In Europe, seed extracts and supplements have been used to treat varicose veins among other venous disorders [4]. Therefore, this study aimed to characterize the phenolic and saponin profiles of the kernel, shell, and husk of the horse chestnut fruit. After separating, lyophilizing, and grinding the three fruit parts, hydroethanolic extracts were prepared by sonoextraction at 400 W (20 kHz) for 40 min. The chromatographic separation and identification of phenolic compounds and saponins were achieved by high-performance liquid chromatography coupled with photodiode array detection and electrospray ionization tandem mass spectrometry (HPLC-DAD-ESI/MS), using different elution gradients [5]. It was possible to identify 31 phenolic compounds in the hydroethanolic extracts, including phenolic acids (caffeic acid and *p*-coumaroyl derivatives), flavan-3-ols ((+)-catechin and (-)-epicatechin derivatives), and flavonols (*O*-glycosylated quercetin, isorhamnetin derivatives, and kaempferol). While flavonols and flavan-3-ols predominated in the seed kernel and shell, respectively, the husk had comparable amounts of both phenolic constituents. The four main aescin saponins were consistently detected in the seed kernel extracts, namely aescin Ia and Ib (β -aescin) and isoescin Ia and Ib (α -aescin). Overall, the different parts of the inedible horse chestnut fruit have a different phytochemical profile in qualitative and quantitative terms. Further studies will be important to evaluate biological activities of the different seed extracts.

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