

3rd Symposium of Young Researchers on Pharmacognosy



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BOOK OF ABSTRACTS



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Chemical-pharmacological analysis of *Peganum harmala*

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Peganum harmala is one of the valuable medicinal plants due to its chemical and pharmacological properties and wide distribution area around the world [1]. The plant is rich in alkaloids, and also contains other groups of plant metabolites [2,3].

In the first stage of our experiment harmine, harmaline and vasicine alkaloids were isolated from *P. harmala* seeds. Later harmine, harmaline and β -sitosterol were also isolated from the roots of this plant.

In addition, the micro- and macroelements, group B vitamins, amino acids [4], fatty acids, phytosterols, total phenol and flavonoid content of various organs (seeds, leaves, stems, roots, capsules, and flowers) of *P. harmala* were analyzed. The physical properties of the seed oil, such as color, refraction, iodine, and soap number were determined. Also, the anatomical-morphological features of *P. harmala* organs were studied by modern microscopy methods.

In the next stage anti-Alzheimer research (acetylcholinesterase and butyrylcholinesterase enzyme inhibitor activity); antioxidant assays such as DPPH, NOSA, FRAP, PRAP, MCA and CUPRAC; antibacterial and antifungal evaluation; anticancer: cytotoxic (HepG2, FaDu) and antiproliferative tests (SiHa, HeLa, A2780, MCF-7, MDA-MB-231) of organs of *P. harmala* were studied. The root extract has shown particularly high results in anticancer tests.

Finally, *in silico* studies were performed on the interaction of *P. harmala* substances with dopamine receptors [5], COVID [6] and various molecular targets [7].

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References

- [1] Nasibova T. *The Modern Achievements of Azerbaijan Medicine* 2020; 3:118-122.
- [2] Shuping Li et al. *Journal of Ethnopharmacology* 2017; 203:127-162.
- [3] Javad SR et al. *Oxidative Medicine and Cellular Longevity* 2021; 5900422.
- [4] Nasibova T et al. *Chemistry of Plant Raw Material* 2021; 1:121-128.
- [5] Mohammad RFP et al. *Biointerface Research in Applied Chemistry* 2021; 11:10301-10316.
- [6] Tuzun B et al. *Bratislava Medical Journal* 2021; 121:670 – 679.
- [7] Bayazeid O et al. *Molecular Diversity* 2021. doi:10.1007/s11030-021-10331-2