

# Pharmacological potential of *Populus nigra* extract as antioxidant, anti-inflammatory, cardiovascular and hepatoprotective agent

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## Abstract

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To evaluate antioxidant, anti-inflammatory, hepatoprotective and vasorelaxant activities of *Populus nigra* flower buds ethanolic extract.

Antioxidant and anti-inflammatory activities of the extract were assessed using respectively the ABTS test and the animal model of carrageenan-induced paw edema. Protection from hepatic toxicity caused by aluminum was examined by histopathologic analysis of liver sections. Vasorelaxant effect was estimated in endothelium-intact and -rubbed rings of porcine coronary arteries precontracted with high concentration of U46619.

The results showed a moderate antioxidant activity (40%), but potent anti-inflammatory activity (49.9%) on carrageenan-induced mice paw edema, and also as revealed by histopathologic examination, complete protection against AlCl<sub>3</sub>-induced hepatic toxicity. Relaxant effects of the same extract on vascular preparation from porcine aorta precontracted with high concentration of U46619 were considerable at 10<sup>-1</sup> g/L, and comparable (*P*>0.05) between endothelium-intact (67.74%, IC<sub>50</sub>=0.04 mg/mL) and -rubbed (72.72%, IC<sub>50</sub>=0.075 mg/mL) aortic rings

The extract exerted significant anti-inflammatory, hepatoprotective and vasorelaxant activities, the latter being endothelium-independent believed to be mediated mainly by the ability of components present in the extract to exert antioxidant properties, probably related to an inhibition of Ca<sup>2+</sup> influx.

**Keywords:** *Populus nigra*, Polyphenols, Anti-inflammatory activity, Hepatoprotection, Vasorelaxation