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## Biological activity of *Cotinus coggygia* non-volatile components: a preliminary study

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### Abstract

**Introduction:** *Cotinus coggygia* is a medicinal plant widely used in folk and modern medicine. The aqueous and alcoholic extracts are documented to possess antiseptic, anti-inflammatory and hepatoprotective properties. The plant is known for its high content of polyphenols, especially flavonoids of pronounced antioxidant activity. However, the decoctions and tinctures of *C. coggygia* are poisonous due to the presence of some toxic alkaloids. Our studies showed that certain components of the ethyl acetate extract are specific inhibitors of fibroblast activation protein  $\alpha$  (FAP) – a post-proline specific peptidase, involved in tumor growth. Selective suppression of FAP leads to a restriction of tumor growth. The *Aim* of the present study was to test the effect of per oral application of ethyl acetate extract from *C. coggygia* on the organs of healthy mice and in mice with solid and ascites forms of Ehrlich's carcinoma. **Materials and methods:** Five groups of laboratory mice were formed (3 animals each): 1 - healthy control animal, 2 and 3 – developing solid form of Ehrlich's tumor, 4 and 5 - developing ascites form of Ehrlich's tumor. All animal from 1, 3 and 5 groups were treated daily per os with 30mg/kg/d extract of *C. coggygia* for a week, while those from 2 and 4 - with normal saline. Tissue sections from liver, spleen, and kidneys were stained by H&E and examined microscopically for the presence of morphological signs of toxicity, necrosis or destruction, tumor metastases and inflammatory reactions. **Results:** No clinical signs or pathohistological evidences of toxicity were observed in controls. The organs of the animals with developing tumors had metastatic tumor infiltrations in organs parenchyma, more severely pronounced in the groups 2 and 4 (not treated with *C. coggygia*). **Conclusion:** Ethyl acetate extract of *C. coggygia* has interval of harmless doses for per os application and may mitigate the pathomorphological changes provoked by developing mammary gland cancer.