

OP14. The Jerusalem Balsam—a case study of a 150-year-old sample

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The Jerusalem Balsam (JB) was formulated in the pharmacy of the Saint Savior monastery in the old city of Jerusalem in 1719. According to traditional sources, JB was based on an ethanolic extract of an herbal mixture. Several variations of the formulation could be found in European Pharmacopoeias, mostly recommended as an antiseptic product [1]. During the current study, an original sample of JB prepared approximately in the year 1870, as well as four contemporary samples of different variations in composition, were analyzed by gas chromatography coupled with mass spectrometry with the aid of solid phase microextraction, as well as by the liquid injection approach. About sixty different compounds have been identified in the materials—mostly essential-oil constituents. Additionally, the LC-MS and NMR (¹H, HSQC, and TOCSY) profiles have been measured for the analyzed samples. Several fingerprint compounds, specific for the herbal material were found in this way. Furthermore, JB samples were tested for cytotoxicity. Two normal (J774E.1 and NIH/3T3) and two cancer cell lines (CLBL-1 [2] and CLBL70 [3]) were used in this experiment. All tested JB samples showed no cytotoxic or were very slightly toxic to normal cell lines. Only one JB sample, the almost 150-year-old one, showed a strong cytotoxic activity but only towards cancer cell lines, with the efficiency of 80-90%.

References:

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