Method of quantitation of a new antitumor agent based on usnic acid and its pharmacokinetics study

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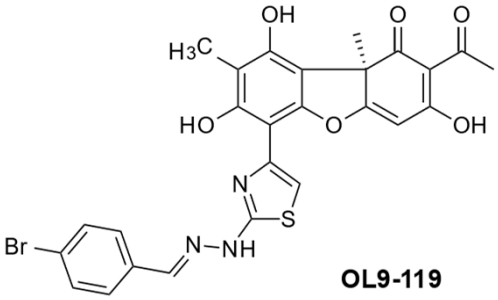
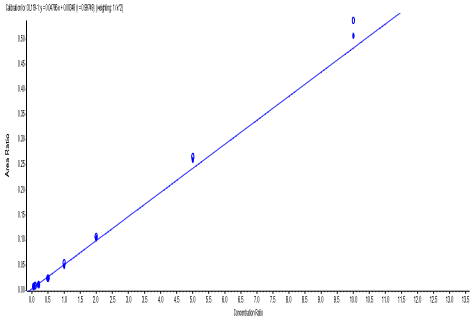
Lung cancer is an urgent medical and social problem. The high resistance of lung cancer to chemotherapy necessitates the search for new drugs and therapeutic strategies. One of the promising approaches is the selective suppression of the activity of tyrosyl-DNA phosphodiesterase 1 (Tdp1) which plays a key role in removing DNA damage caused by chemotherapy.

Earlier, *in vitro* experiments showed that the compound OL9-119, derived from usnic acid, was the most potent inhibitor of Tdp1 known. The drug was well tolerated when administered orally and increased the effect of antitumor drug topotecan.



OL9-119



In the present work, a method for the quantitative determination of OL9-119 in rat plasma by HPLC-MS/MS was developed and validated. The results of all validation tests (selectivity, linearity, accuracy and precision, carry-over) fully comply with the acceptance criteria of international regulatory documents.

Pharmacokinetics study of the agent showed that when it was administrated to rats intravenously or intraperitoneally, its maximum concentration in blood reached in about 30 minutes and was about 3 µg/ml providing sufficient amount of the agent for exerting its activity.