

Abstract

This work is devoted to the phytochemical and biological study of two species, one belonging to the genus *Pistacia* of the family Anacardiaceae and the other to the genus *Salvia* of the family Lamiaceae. The species *Salvia microphylla* has never been studied phytochemically before in Algeria so for the species *Pistacia atlantica* which has been studied very little on the phytochemical side.

The objective of this work is the isolation and determination of the structures of the isolated products from the various extracts, as well as the *in vitro* evaluation of antioxidant activity, anticholinesterase activity and antiproliferative activity against human cervical cancer cells (Hela) extracts from the species *Pistacia atlantica*.

Various chromatographic separation methods allowed for the isolation of thirteen compounds of *Pistacia atlantica* ethyl acetate and methanolic extracts, and twenty-two compounds of *Salvia microphylla*.

The structural determination was carried out by the different spectroscopic analysis methods: nuclear magnetic resonance and its different applications (RMN-1H, RMN-13C, COSY, HSQC and HMBC), HPLC-TOF/MS, mass spectrometry, ultraviolet as well as comparison of results with literature data.

The quantification of phenolic acids and flavonoids from *Pistacia atlantica* extracts was performed by HPLC-TOF/MS. The result revealed the presence of 14 phenolic acids, 8 flavonoids.

4 methods were used to evaluate the antioxidant activity of *Pistacia atlantica*. The results show a very high activity, This is explained by the richness of our extracts in polyphenols.

Anticholinesterase activity of *P. atlantica* phases performed against two enzymes, acetyl- and butyrylcholinesterase. The results obtained against acetylcholinesterase show that acetate extracts had the highest anti-cholinesterase activity. This high activity may be due to the presence of flavonoids

Regarding antiproliferative activity The EMPA extract appears to have the best response to Hela cells for the three concentrations tested; however, this effect is almost identical for the three concentrations.

- The ECPAF extract showed inhibitory effects for all three concentrations and the highest antiproliferative activity was obtained at the concentration of 50 g/ml.
- In EAPAF and EAPAT extracts higher concentrations (100 and 250 g/ml) showed high antiproliferative activity against De Hela cells.

The EBPAF and EBPAT extracts showed good inhibitory activity on the growth of Hela cells in a dose and time dependent manner. These extracts showed total inhibition of Hela cells after the first 20 hours of treatment at 250 g/ml, but lower concentrations (50 and 100 g/ml) showed moderate inhibitory effects. The 200 g/ml concentration was found to be optimal (highest inhibition) for all extracts except the ECPAF extract.