OP16. EVALUATION OF ANTIOXIDANT AND ENZYME INHIBITORY ACTIVITY OF FOUR *ECHIUM* SPECIES

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Herbal medicine has proven to be effective in the treatment of a variety of disorders and has aided in the development of new medications. The genus *Echium* belongs to Boraginaceae family[1], have been used for different purposes in Turkish Folk Medicine[2], however some species have not been examined in detail in terms of enzyme inhibition activity.

We aimed to evaluate the antioxidant activity, inhibiting effect on digestive enzymes linked to diabetes and Alzheimer disease related acetylcholinesterase and butyrylcholinesterase, skin whitening effect related enzyme tyrosinase of ethanol extracts obtained from four different *Echium* species namely *E. italicum, E. vulgare, E.angustifolium* and *E. parviflorum*.

The antioxidant effect of extracts was investigated with DPPH• (1,1-diphenyl-2- picryl-hydrazil), ABTS•+ (2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) radical scavenging and iron chelating tests. Total phenol and flavonoid contents were determined with Folin-Ciocalteu and aluminum chloride colorimetric methodrespectively. The anticholinesterse activity related with Alzheimer's disease wastested with Ellman's methods on acetylcholinesterase (AChE) and butyrylcholinesterase (BChE)

In a result the highest total phenolic (43.58±3.56mgGAE/g extract) was found in *E. italicum* herba extract and total flavonoid content (105.59±2.93 mgQE /g extract) was found in *E. parviflorum* aerial part extract. The highest AChE and BChE inhibitory activity were found in aerial part extract of *E. italicum* (IC_{50}=46.39±0.35 µg/mL and IC_{50}=11.59±0.52 µg/mL). However, the highest tyrosinase inhibitory activity was found in *E. parviflorum* aerial part extract (IC_{50}=1.83±1.06 mg/mL).

This is the first report that these biological activities investigated in four *Echium* species and theses are thought that these studies could contribute to the advanced pharmacological activity studies and chemotaxonomy of the genus.

Keywords: Echium; antioxidant; total phenolic

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