



## Assessment of total flavonoid content and antioxidant activity of Mullein (*Verbascum songaricum*) ecotypes

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**Background and objectives:** The Mullein genus is the largest genus of Scrophulariaceae family which has extensive natural habitat in southwest of Iran. Mullein contains compounds such as phenolic compounds, mucilage, saponins and anthocyanin. The aim of this study was to evaluate the total flavonoid content and antioxidant activity of mullein ecotypes in Iran. **Methods:** Six ecotypes of the *Verbascum songaricum* were evaluated. Determination of total flavonoid content was performed by the aluminium chloride colourimetric method. The antioxidant activity of the flower extracts was measured using the DPPH method. **Results:** The results showed that total flavonoid content and antioxidant activity were different among ecotypes. The highest and lowest amounts of total flavonoid was obtained from Shermard ecotype (13.42 mg rutin /g DW) and Klar ecotypes (10.10 mg rutin /g DW), respectively. The highest amounts of antioxidant activity were obtained from the Shermard ecotype (IC<sub>50</sub> 246.35 µg/mL). The correlation analysis showed that a significant relation between flavonoid, antioxidant activity and habitat elevation. **Conclusion:** Total flavonoid content and antioxidant activity of the samples were affected by habitat climatic. The present data indicated that the highest antioxidant activity may be due to higher flavonoid content and the habitat elevation was effective on the flavonoid content. Due to the high amounts of flavonoid and antioxidant activity of mullein extract, it seems to be a good herbal option as an antioxidant in complementary therapies.

**Keywords:** antioxidant activity, flavonoid, *Verbascum songaricum*

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