

## Abstract

The Tunisian thyme *Thymus capitatus* has shown promising antioxidant activity. The objective of this study was to investigate the antioxidant activities and the toxicological effects of *T. capitatus* ethanolic extracts using *in vitro* antioxidant assays and MTT assay in Caco-2 and RAW 264.7 cell lines. In this study, Folin-Ciocalteu, DPPH, ABTS, and FRAP assays were performed to assess the total phenolic content and antioxidant activity. Additionally, MTT assay was conducted to check the toxicological effects of the extracts towards the cell viability of Caco-2 and RAW 264.7 cell lines.

Our results suggested that our Tunisian *T. capitatus* extracts exhibited a significant difference for their antioxidant activity and their toxicological effects to models of human intestines. A slight difference in total phenolic content and antioxidant activities, based on DPPH and ABTS assays, were found between KMP and TMP extracts. Whereas, a significantly higher antioxidant activity based on FRAP assay was found in KMP extract compared to TMP extract, both in lower concentrations. Both extracts resulted in significant increase of cell viability for undifferentiated Caco-2 cells with a possible toxic effect in higher concentrations, particularly for KMP polyphenol. Collectively, the antioxidant activities and toxicological effects of *Thymus capitatus* were shown in the current study, with KMP extract having higher potential as supplement due to its higher ferric reducing power without showing cytotoxicity towards human intestinal cell model in lower concentrations. The difference in antioxidant activity and toxicological effect between both Tunisian *T. capitatus* extracts might be caused by different in phenolic compounds and composition.

**Keywords:** *Thymus capitatus*, DPPH, ABTS, FRAP, MTT