



**University of Zabol
Graduate Management
College of Basic Sciences
Department of Biology
Thesis for master's degree In study of plant physiology**

**Title
Evaluation of phytochemical compounds and antioxidant properties of three
populations of *Capparis spinosa* .L in Iran**

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Abstract

The scientifically known cobra plant (*Capparis spinosa. L*) is a drought tolerant plant belonging to the genus Capparidaceae and is distributed in countries around the Mediterranean to Central Asia as well as Australia. This plant is essential as a potential source of nutrients such as vitamins (especially vitamin C), digestible protein, reducing sugars and minerals and is very valuable for human food. The fruit of this plant, which has a high nutritional value, is usually eaten as a pickle before full maturity and added to salads, sauces and jams. This plant is traditionally used to prevent or treat a number of medical disorders such as diabetes, hepatitis, obesity and kidney problems. Cobra contains active chemicals such as terpenoids, alkaloids, glucosinolates, tocopherols, polyphenols, isothiocyanates, carotenoids and phenolics. A wide range of medicinal activities such as antioxidant, cardiovascular, antimicrobial, anti-inflammatory, liver protection, antipyretic, diuretic and hypoglycemic have been attributed to various parts of *Capparis spinosa*. In this study, the amount of total phenol, flavonoids and antioxidant activity of *Capparis spinosa* flower, fruit and leaf organs in three populations of Tehran, Zabol and Gorgan were investigated. The amount of total phenol compounds was measured by Folin Siocalcium method and the amount of flavonoid compounds was measured by aluminum chloride colorimetric method. Antioxidant activity was determined by reducing the reducing power of nickel, chromium and cobalt based on Benzie method. The results of this study showed that the amount of total phenol in flower, fruit and leaf organs of Tehran population is higher than Zabol and Gorgan population. The amount of flavonoids in fruits and flowers of Gorgan population has the highest amount but Tehran population leaf has the most flavonoids. Fruits and leaves of Tehran population have the highest amount of antioxidant activity and flowers of Gorgan population have the highest amount of antioxidant activity. In all cases, the amount of phenols and flavonoids in flowers is more than leaves and in leaves is more than fruits. In all cases The amount of antioxidant activity in flowers is more than leaves and in leaves is more than fruit and its consumption as a spice or pickle is very useful for health and can be used for nutritional and medicinal purposes. Phenolic and flavonoid content is directly related to antioxidant activity. It has organs.

Keywords: *Capparis spinosa*, Antioxidant, Cobra, Flavonoids, Phenol