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# STUDY THE EFFECT OF ZATARIA MULTIFLORA ESSENTIAL OIL ON MARKETABILITY OF SULTANA GRAPES CONTAMINATED WITH *BOTRYTIS CINEREA*

Sepideh Sabounchi[*1,] Sahand Zarrinbakhsh[1], ,Vali Rabiee[2],Saeed Piri[2]
*1 Horticulture-Medicinal plants,Azad University ,Abhar,Iran*
*2Faculty of Agriculture Science department,Azad University ,Abhar,Iran*
*E-mail [1]: sabounchi@tehranstandard.com*

**I N T R O D U C T I O N :** Gray mold diseases associated with *Botrytis cinerea* is one of the most important agent in table grapes diseases[1].Because of limitations in the use of fungicides in controlling post-harvest fruits rot,the indication of natural ingredients such as essential oils is concerned [2]. Therefore recognition of an alternative to fungicide to prevent or decrease post-harvest fruits rot seems valuable. The purpose of this research is study the effect of Z*ataria multiflora* essential oil on inhibition of the growth of *Botrytis cinerea* and marketability of Sultana grapes which contaminated with *Botrytis cinerea*.

**MATERIALS AND METHODS:**The essential oils was extracted by hydro-distillation and analyzed by the combination of GC and GC/MS. High percentage of anti fungal components like thymol(44.4) and carvacrol(26.3)in *Zataria multiflora* essential oil were detected.The grapes were contaminated with *Botrytis cinerea* spores suspension at the concenteration of$5\times10^5$per ml sterile distilled water. Then samples were treated with suspension of 0,200 and400ppm *Zataria multiflora* essential oil.Samples were stored at 4 $^{\circ}C$.When signs of corruption in the control samples were observed, all other samples were examined .Experimental design was factorial in a completely randomized design with three replications

**RESULTS AND DISCUSSION** :The results revealed that the use of essential oils of *Zataria multiflora* has positive effect on the inhibition of the growth of *Botrytis cinerea* in grapes. Also significant difference was detected in different concentration of the essential oil used in this study. By increasing the concentrations of essential oil, anti-fungal activity against *Botrytis cinerea* was increased. Berries abscission ,crushing ,discoloration and decay were improved. According to the reports of Vesal talab et al. [3],applying *Eugenia caryophyllata* had significant effect on grapes berries abssision but it had not significant effects on color changes.Further study is recommended to find ways to eliminate the undesirable effects regarding the remaining of the essential oils aroma and flavor.

**Keywords:***Botrytis cinerea*, essential oil,post harvest, *Zataria multiflora*, grapes.