

**STUDY THE EFFECT OF ZINGIBER ZEYLANICUM THE AND EUGENIA  
CARYOPHYLLATA ESSENTIAL OILS ON MARKETABILITY OF SHAHROODI GRAPES  
CONTAMINATED WITH *BOTRYTIS CINEREA***

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**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 **Zingiber zeylanicum**(cinnamon) and *Eugenia caryophyllata* essential oil on inhibition of the growth of *Botrytis cinerea* and marketability of Shahroodi grapes contaminated with *Botrytis cinerea* .

**MATERIALS AND METHODS:** The essential oils were extracted by hydro- distillation and analyzed by combination of GC and GC/MS. The tests results showed high percentage anti fungal components like Cinnamaldehyde (87.1) in Zingiber zeylanicum essential oil and Eugenol(90.4) in *Eugenia caryophyllata* essential oil. First, the grapes were contaminated with *Botrytis cinerea* spores suspension with a concentration of  $5 \times 10^5$  per ml sterile distilled water, then samples were treated with suspension of 0,250 and 500mlg per liter of Zingiber zeylanicum and 0,150,300mlg per liter of *Eugenia caryophyllata* essential oil. Samples were stored at 4 °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 Zingiber zeylanicum and *Eugenia caryophyllata* hasve positive effects on the inhibition of the growth of *Botrytis cinerea* in Shahroodi 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 and decay were improved. According to the reports of Vesal talab et al. [3], applying *Eugenia caryophyllata* had significant effect on grapes berries abscission 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. 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, grapes, gray mold.



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