Abstract

Menthol compound is one of the most important compounds in Potanium herbs. The study of how to set this pathway and identify the steps that affect the speed of production of these valuable metabolites is one of the first and most important steps in the development of metabolic engineering in order to increase production. Pulmonary reductase and isopyperitone reductase genes in Pooneh's leaves in the pathway of menthol biosynthesis are the genes associated with the enzymes of this biosynthetic pathway. On the other hand, the stimulation of the enzyme with the help of the elicitors is one of the important methods for increasing the production of effective biosynthetic pathways. In this research, the expression of Pulgon Reductase and Isopyperitone Reductase genes under the influence of nano-iron and chitosan elicitors in an oregano cultivar was studied in a factorial design. For this purpose, after application of the plant, application of niacin-iron irritation treatments (0, 50 , 100, 150 mg / L) and oligotoric chitosan (0.0.5, 2, 3.5 g / l). After preparation of leaf samples from all treatments, RNA extraction, and cDNA production and temperature gradient, the Real Time PCR reaction was used to examine the expression pattern of the genes, then the data were analyzed by SAS 9.2 software. And analysis. The main effects of nano-iron and chitosan treatments and their interactions were significant at 1% probability level. The expression of PR and IPR genes in treated with different concentrations of nano-iron and chitosan increased the concentration with control compared to the genes that decreased in treatment with different concentrations of chitosan.

Keywords:

Elythorth, Pune, Menthol, Real Time PCR

University of Zabol

Graduate school

Faculty of Agriculture

Department of Aquiculture

The Thesis Submitted for the Degree of Master of Science

Plant Breeding and Biotechnology

Effect of Nano-Fe and chitosan on gene expression of plugeone reductase, iso-peperitine reductase mentha pluegium leaf.

Supervisor

Dr. M. Seleuci

Advisors

Ziba Foladvand

Forozan hydari

By

Z . Jomeh Ghasem Abadi

Summer 2018