

Isolation and sequencing of α -bisabolol gene from German Chamomile

Abstract

Chamomile is one of the most important Pharmaceutical plants in universal trade which has numerous applications in the pharmaceutical and cosmetic-hygienic industries. Chamomile essential oil due to having effective combination of Chamazulene, alpha-bisabolol and bisabolol oxide A, has many health benefits such as antimicrobial, anti-inflammatory, antispasmodic and antiseptic properties., and it is used in treatment of diseases of stomach and intestines. One of the important members of Chamomile essential oil is bisabolol alpha which is of the family species of Sesquiterpenoids. The responsible gene for producing this important substance is alpha bisabolol synthase. For commercial use of this substance, it must be produced in large quantities and high purity that it isn't well obtained through distillation of plant., and since theoretically, genes coding for each protein could be expressed by recombination techniques in bacteria, yeasts or cloned mammalian cells, therefore, in this study we isolated and identified the bisabolol synthase gene from Chamomile and we offer it for cloning and expression. To achieve this aim, RNA was extracted from all Chamomile plant samples and after getting cRNA of them, PCR reaction of all samples was done. After seeing components on agarose gel, products were sent for sequencing. The results of agarose gel confirmed the correct synthesis of components. Results of sequencing confirmed the correct synthesis of gene components after comparing with bank gene of NCBI.

Therefore, in this study, isolation of components of alpha bisabolol synthase gene from Chamomile plant, which is used for cloning of this gene in expression vectors and production of protein was successfully completed.

Key words: Isolation, Alpha Bisabolol synthase, German chamomile



University of Zabol
Graduate School
Faculty of Science
Department of Biology

**The Thesis Submitted for the Degree of M.Sc
(in the field of Genetic)**

**Isolation and sequencing of α - *bisabolol* gene from German
*Chamomile***

Supervisors:
Dr. F. Hadadi
Dr. H. Kamaladini

Advisors:
Dr. S. Najafi
Dr. S. Esmaelzadeh

By:
B. Mir
September 2015