



کد اختصاصی همایش
۹۷۱۸۱-۰۰۲۱۰۳

رایجیادوس

دانشگاه علوم پزشکی تهران

فانبازار

وزارت امور ارتباطات

وزارت امور ارتباطات

The 2nd International Conference on
Medicinal Plants, Organic Farming,
Natural and medicinal materials

۲۲ اسفند ماه ۱۳۹۷ - مشهد مقدس

Investigation and Evaluation of the Effect of Two Supercritical Fluids on the Extraction of
Dill Seed Essential Oil Compounds

Hannaneh Hajizadeh¹ - Reza Akbari² - Faramarz Rostami³ - Abolfazl Daneshvar⁴

1-M.Sc student of Essential Chemical Technology, Department of Chemistry, Faculty of Science,
Gonbad Kavous University, Gonbad Kavous, Iran

2- Assistant Professor, Department of Chemistry, Faculty of Science, Gonbad Kavous University,
Gonbad Kavous, Iran

3- Associate Professor, Department of Chemistry, Faculty of Science, Gonbad Kavous University,
Gonbad Kavous, Iran

4- Assistant Professor, Department of Biology, Faculty of Science, Gonbad Kavous University, Gonbad
Kavous, Iran

Abstract

Medicinal plants have long been used by humans for their beneficial therapeutic properties. By extraction and purification of secondary metabolites of these plants we can use them in the pharmaceutical, food, cosmetic and sanitary industries. One of the valuable medicinal herbs that is commonly named dill is *Anethum graveolens* L. In this research the dill seeds were obtained from Darreh-Gaz city, Khorasan-e-Razavi province. First the seeds were powdered, then the extraction of the essential oil was obtained by using two supercritical fluids such as carbon dioxide and n-hexane. The essential oils were stored separately at 4°C. The essential oils were analyzed by gas chromatography coupled to mass spectrometry. Eight compounds were identified in the supercritical carbon dioxide extraction process based on the characteristics of the mass spectrometry and inhibition coefficient. In the supercritical n-hexane extraction method, nineteen compounds were determined. The gas chromatography coupled mass spectrometry analysis results that the difference in temperature causes many changes in the chemical composition of the essential oils, only the compounds that structure does not change due to the temperature are carvone and limonene.

Keywords: *Anethum graveolens* L., Carbon dioxide, n-Hexane, Medicinal Plants, Carvone, Limonene