

BOOK OF ABSTRACTS



*XIV International Scientific Agriculture Symposium
"Agrosym 2023"
Jahorina, October 05-08, 2023*



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Impressum

XIV International Scientific Agriculture Symposium „AGROSYM 2023“

Book of Abstracts Published by

University of East Sarajevo, Faculty of Agriculture, Republic of Srpska, Bosnia
University of Belgrade, Faculty of Agriculture, Serbia
Mediterranean Agronomic Institute of Bari (CIHEAM - IAMB) Italy

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Balkan Scientific Association of Agricultural Economics, Serbia
Institute of Agricultural Economics, Serbia

Editor in Chief

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Sinisa Berjan
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Website:

<http://agrosym.ues.rs.ba>

CIP - Каталогизација у публикацији
Народна и универзитетска библиотека
Републике Српске, Бања Лука

631(048.3)(0.034.4)

INTERNATIONAL Scientific Agricultural Symposium "Agrosym
2023" (14 ; Jahorina)

Book of Abstracts [Електронски извор] / XIV International
Scientific Agriculture Symposium "Agrosym 2023", Jahorina,
October 05 - 08, 2023 ; [editor in chief Dušan Kovačević]. - East
Sarajevo =Istočno Sarajevo : Faculty of Agriculture =Poljoprivredni
fakultet, 2023. - 1 електронски оптички диск (CD-ROM) : текст,
слика ; 12 cm

Системски захтеви: Нису наведени. - Насл. са насл. екрана. -
Регистар.

ISBN 978-99976-987-7-3

COBISS.RS-ID 139166465

EFFECTS OF ESSENTIAL OILS OF OREGANO, LAVENDER AND CINNAMON ON THE GERMINATION OF CREEPING THISTLE (*CIRSUM ARVENSE* L.)

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Abstract

Weeds are an important challenge in agriculture significantly reducing crop yields. The use of pesticides in conventional agriculture to control weeds is associated with environmental and health risks, which has led to interest in more environmentally friendly methods of weed control. The aim of the study was to determine the effectiveness of the use of essential oils as an alternative for controlling invasive weed species. The effect of essential oils of oregano (*Origanum vulgare* L.), lavender (*Lavandula officinalis* L.) and cinnamon (*Cinnamomum zeilanicum* L.) on the germination of creeping thistle (*Cirsium arvense* L.) seeds was investigated. Germination tests were performed in a germination chamber at 4 °C for 21 days, as well as at 25 °C (day) and 15 °C (dark) for seven days. Each essential oil was applied at four concentrations — 1%, 0.5%, 0.2% and 0.01% — and water as a control. *Cirsium arvense* seeds were completely prevented from germinating when exposed to treatments containing high amounts of EO essential oils (1% and 0.5%). The most effective oil at a concentration of 0.2% to prevent seed germination was cinnamon oil, which had a 30% germination success rate. Oregano and lavender were next, with 31% and 35% germination success. The lowest concentration applied to creeping thistle seed for all oils was similar. The average number of germinating seeds in a concentration of 0.01% was 45%. The obtained results show that it is possible to use essential oils as natural pesticides to control various weeds in sustainable agriculture.

Keywords: *weed, oil, germination.*