

**Determination of the Allelopathic Effects of Jojoba (*Simmondsia chinensis* Link Scheinder ) and Lavender (*Lavandula angustifolia*) Plants on the Seed Germination and Hormone Development of Different Cultivated Plants**

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**Aim of the study:** Today, in parallel with the sharing of risks related to the use of synthetic pesticides in agricultural areas, organic agriculture has begun to gain importance and allelopathic potentials of jojoba (*Simmondsia chinensis*) and lavender (*Lavandula angustifolia*) plants have been searched for since this production line is likely to gain more importance in the near future. The percentage of germination of seeds and the amount of hormones were examined.

**Material and Methods:** Jojoba (*Simmondsia chinensis*) and lavender (*Lavandula angustifolia* M.) leaves were collected and dried in seasonal periods. The dried leaves were shredded by blender and the seeds were crushed in press and weighed 4g on a precision scale and extracted with solvent (n-hexane) for 6 hours in a Soxhlet device. From these seeds, the fuller, firm-looking and similar-sized ones were selected and placed into the petri dishes prepared with filter papers in a way to be 10 each in a controlled manner. The seeds were moistened by adding 8 ml of extracts of jojoba and lavender plants at different successive concentrations (5%, 10%, 15%) with control (distilled water) and allowed to germinate for 1-4 days at 25°C on average. For hormone analysis, 2 g of samples were taken. 10 ml of 98% ethanol was added into them and were mixed in the homogenizer for 2 minutes. They were kept in the water bath at 40 ° C for 1 night. At the end of this period, centrifugation was carried out at 4000 rpm for 5 minutes. The organic phase was removed and completely evaporated at 40 ° C on a rotary evaporator until it dried.

**Results:** When the plant extracts used were examined in general, they highly caused to inhibition of germination. In studies, it was suggested that the high rate of inhibition in germination experiments under laboratory conditions was due to petri-experiments. In germination inhibition, enzymes such as  $\alpha$ -amylase, lipase and protease have been observed to be suppressed by allelochemicals in the extracts. In experiments with germinated seeds, root thickening and discoloration were observed in addition to the inhibitory effect of lavender extracts on radicle and plumula length, and it was concluded that these phytotoxic effects were caused by allelochemicals contained in the extracts.. Gibberellic acid is one of the most important growth regulators used to break the dormancy. Hormone analysis results indicate that gibberellic acid levels are high in lavender seed and leaf extracts (lavender seed:  $461,10 \pm 3.55$ , lavender leaf:  $816.52 \pm 25.21$ ), while the ratio of abscisic acid (ABA), which suppresses germination, is also high in jojoba leaf and lavender leaf extracts (jojoba leaf:  $3.98 \pm 1.25$ , lavender leaf :  $3.13 \pm 0.56$ ) These results are in line with previously obtained germination rates and can be regarded as another indication that plant extracts inhibit seed germination.

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