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“Filling gaps and removing traps  
for sustainable resource management”

## Effect of *Mentha piperita* and *Thymus vulgaris* Essential Oils on Seed Germination of *Zea mays*

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### Abstract

Brazil is the world's second largest exporter of corn, surpassed only by the United States (US). The product is recognised for its good quality and for guaranteeing supplies in several countries exactly during the US off-season. To achieve this high production it is necessary to guarantee a high index of vigorous seeds, and this can be reached through seed stimulants. Essential oils can act as germination stimulant. Therefore, the objective of this study was to evaluate the effect of *Mentha piperita* and *Thymus vulgaris* essential oils, at concentrations of 1%, 5% and 10%, on germination of maize seeds. The experiment was conducted with four replicates of 50 seeds each, totaling 200 seeds evaluated. The essential oils were diluted in organic solvent to form the doses. The corn seeds were immersed in the oil solutions for 1 minute, and after drying, they were wrapped in sheets of paper towel. The rolls of paper were packed in plastic bags. The tests were carried out in a germinating chamber, type B.O.D., with photoperiod of 12 hours for a period of 8 days with controlled temperature of  $25 \pm 2$  °C. The evaluations were performed on the 4<sup>th</sup> and 8<sup>th</sup> days after the test installation. The results were expressed as a percentage, where it was observed that the *Mentha piperita* oil at the 1% dose presented the best value with 99% for normal seedlings, while the percentages of 5 and 10% presented 92 and 88% respectively. For the *Thymus vulgaris* oil, it was observed that concentrations 1 and 5% presented the best values for normal seedlings (100 and 99%, respectively) in relation to the 10% dose (88%). The control treatment showed 100% of normal seedlings in both tests. It was concluded that 1% *Mentha piperita* oil and 1 and 5% *Thymus vulgaris* oil can be used as germination stimulants, since vigorous plants were observed in these treatments, compared to the control group. However, the doses of 10% for both plant oils are not feasible, since they hinder germination and development of the seedlings.

**Keywords:** Corn, essential oil, germination seeds