

## **Use of ultra-sonication to accelerate germination in seed**

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### **[Introduction]**

Many invigoration treatments of seeds, referred to as seed priming, have been used to increase and/or accelerate germination, as, for example, the addition of chemicals, plant hormones or by controlled hydration. The addition of gibberellic acid is probably the most effective method, but is time consuming and relatively expensive. Other chemical methods may add undesirable residues to the culture. Germination may also be stimulated by physical methods as, for example, heat treatments, ionizing radiation or vacuum.

### **[Materials and Methods]**

In this study, the influence of ultrasonic stimulation was investigated on the germination and storability of seed for *Raparus sativus*, *Brassica oleracea*, and *Brassica compestris*. All experiments have been performed using a various frequency of ultrasonic stimulation in range between 14.3 and 22.8kHz at constant temperature (25 °C).

### **[Results and Discussion]**

A significant increase in the accelerated germination was identified after ultrasonic stimulation. Results seem that ultrasonic stimulation application of higher frequency than lower frequency is the more effective in the three crops(not significant among the treatments). Ultrasonic treatment and non-treatment seeds were stored in various conditions (Packing materials : burlap bag, aluminum polybag, polyethylene bottles, Temperaturer : ambient, 15°C/RH40%, 5°C/RH30%) for six months and evaluation of storability was carried out to confirm the effect of ultrasonic treatment as seed priming. In case of *Raparus sativus*, Ultrasonic treatment seed showed significantly accelerated germination than non treatment in all storage conditions. The further results will be discussed.

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