

Dormancy breaking and germination methods of madder (*Rubia tinctorum*) seeds (Poster)Roohbeh Farhoudi¹ Maryam Makizadeha²¹ Dep of Agronomy, Islamic Azad University, Shoushtar branch, Shoushtar, Iran² Medicinal Plant Institute, Tehran, Iran**Introduction**

Madder (*Rubia tinctorum*) is a foregoes plant from Rubiaceae family that historically refer to Ghafghaz and Near East. This plant traditionally cultivated in center and west region of Iran. Cultivation of madder is prevailed in center regions of Iran like Yazd province for dyeing industry and extracting the drug components, therefore now days industrial color use instead of madder extracted color(1). The main parts of madder that used for mentioned works are roots and rhizomes, which contain Alizarine, rubestic acid and pourpourines. The red color of madder caused by the Alizarin component. Drug by products of madder used to diuretic, laxative and to parry the kindness stones.

Objectives

The dormancy of planed seeds is a problem to cultivating this plant, so for augmenting, it used rhizomes that it can be as troubles like transfer of pests and diseases among fields and also collecting the rhizomes for cultivating in the following year.

Methods

This research was carried out in agricultural college of Islamic Azad University of Shoushtar, in may 2004 for determining the suitable methods to breaking of madder seed dormancy. The treats were:

1. control
2. scarification of seed coat with sand paper
3. scarification of seed coat with sulfuric acid 90% for 10,15 and 20 minutes
4. scarification of seed coat with hot water 70 °C and 90 °C for 5 and 10 minutes.
5. Over lighting
6. Ghibberlic acid(GA3) using 500 ppm for seeds

These treats arranged with completely randomized design with four replication

Results

Seed germinating treated with sulfuric acid 90% for 10,15 and 20 minutes were 81%,89% and 82% respectively , that there was significant different among them and control treatment. Allocating the seeds in hot water 70 °C and 90 °C for 5 and 10 minutes caused the significant germinating of madder seeds in the compare of control treatment. Hot water 90 °C in 5 and 10 minutes caused germinating 78% and 75% respectively and hot water 70 °C in 5 and 10 minutes caused germinating 23% and 74% respectively. Among these treatments, only damping with hot water 70 °C had low effect on germinating, that was because of low ability to penetrate in to seed coat, although it increased germinating in compare of control.

Conclusion

There is misconception about seed dormancy that the dormancy of seed rest until its germinating, but it is exactly inaction not seed dormancy. Seed dormancy defined as a situation that regardless the environment that is suitable for germinating, but the seeds don't germinate. It seems that the pressure caused by water water absorbing, and embryo growth was not enough strong to split the seed coat. The scarification treatments turned the seed coat thin or splitting the seed coat and finally decreased the mechanical resistance for embryo coming out. Successfully germinating of madder seeds treated with seed coat scarification confirmed that mechanical resistance of coat has negative effect on embryo excite. By using the suitable treatments can break the madder seed dormancy, and it is the perspective the economical production of this valuable plant to industrial and medical purpose.

Keywords: dormancy breaking, sulphuric acid ,hot water

Selected References

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Presenting Author: roozbeh farhoudi, rozi_shupi@yahoo.com and rfarhodi@ut.ac.ir