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This is a pre print version of the following article:

Original:

Muccifora, S., Bellani, L., Giorgetti, L. (2023). Influence of seed coat color on germination rate and seedling development of *Trifolium repens*. Is physiological dormancy possible?. In 4th Edition of Food science and Nutrition Technology Virtual. virtual.

Availability:

This version is available <http://hdl.handle.net/11365/1233235> since 2023-05-27T09:34:27Z

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Influence of seed coat color on germination rate and seedling development of *Trifolium repens*. Is physiological dormancy possible?

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Presentation Category: Oral Presentation

Trifolium repens L. (var. Regal Ladino) is among the most used species of Italian legumes as fodder for pastures, for direct consumption, or as mowing for stocks and then pastures. The seed integument of *Trifolium repens* L. has different colors ranging from light yellow to dark brown. In this work, the physiology of germination of light-colored, light intermediate, dark and dark intermediate seeds was studied to highlight any difference-in the percentage of seed germination and seedling development. The results showed a lower germination rate and a noticeable reduction of the root length in dark seeds compared to light seeds. In this context, tests to exclude a physiological dormancy of dark seeds were performed. Light microscope and scanning electron microscope observation were conducted to detect substantial differences in the structure and thickness of the integument and in the quality of reserves. Biochemical investigations have evidenced that total polyphenols content is similar in all the seeds categories, while higher amount of total flavonoids was detected in dark seeds. Total Polyphenols and flavonoids content decreased during germination in all seed groups.

Biography of Presenting Author:

Simonetta Muccifora, Researcher in Plant Physiology at Siena University, Department of Life Sciences, Professor of Plant Physiology and Biochemistry and of Plant Ecophysiology. Has published more than 40 papers in indexed journals, is member of the Topical Advisory Panel of the Journal "Plants" and reviewer of numerous articles of reputed journals.

