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Germination and Seed Vigor Response of Five Wheat Cultivars to Stress of Premature Aging Effects

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Abstract : To evaluate the vigor of wheat seeds and stress of premature aging effects on germination percentage, root length and shoot length of five wheat cultivars that include Vynak, Karkheh, Chamran, Star and Kavir which underwent a period of zero, two, three, four days in terms of premature aging with 41 °C temperature and 100% relative humidity. Seed germination percentage, root length and shoot length in these conditions were measured. This experiment was conducted as a factorial completely randomized design with four replications in laboratory conditions. The results showed that each of aging treatments used in this experiment can be used to detect differences in vigor of wheat varieties. Wheat cultivars illustrated significant differences in germination percentage, root length and shoot length in terms of premature aging. The wheat cultivars; Astar and Vynak had maximum germination percentage and Karkheh, respectively Kavir and Chamran had lowest percentage of seed germination. Reactions of root and shoot length of wheat cultivars was also different. The results showed that the seeds with a stronger vigor affected less in premature aging condition and the difference between the percentage of seed germination under normal conditions and stress was significant and the seeds with the weaker vigor were more sensitive to the premature aging stress and the premature aging had more severe negative impact on seed vigor.

Keywords : wheat cultivars, seed vigor, premature aging effects, germination
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