

ABSTRACT

Red chili peppers (*Capsicum annuum* L.) are a type of horticultural crop that requires high-quality seeds to grow well and produce a bountiful harvest. The moisture content of the seeds and the condition of the sowing medium are critical, as improper drying can reduce the physical quality of the seeds, while the sowing medium affects the availability of water and oxygen during the germination process. This study aimed to determine how drying duration, type of germination medium, and the combined effect of both factors influence the ability of red chili seeds to grow and develop well. The study was conducted from February to March 2026 in Kuta Blang Village, Banda Sakti Subdistrict, Lhokseumawe City, as well as at the Agroecotechnology Laboratory, Faculty of Agriculture, Malikussaleh University. This study used a completely randomized design (CRD) with two factors: drying duration (0, 1, 3, and 5 days) and tissue-based sowing media consisting of napkins, rice straw paper, and unbleached paper, with three replications. Data were analyzed using an F-test, followed by a DMRT at a 5% confidence level. The study showed that drying had a significant to highly significant effect on moisture content, maximum growth potential, germination capacity, vigor index, growth rate, germination uniformity, and root length. The germination medium had a highly significant effect on most parameters. The interaction between the two treatments had a highly significant effect on maximum growth potential, germination capacity, vigor index, growth rate, and growth time uniformity. The combination of 3-day drying and unbleached paper (P2S3) produced the best quality, with a germination percentage of 98.667%, a vigor index of 50.667%, and a growth rate of 2.144% per day. Therefore, drying red chili seeds for 3 days followed by germination on unbleached paper provided the best results for several germination parameters.

Keywords: orthodox, physiology, seedling, viability