ABSTRACT

Tomato (*Solanum lycopersicum*) is a horticultural commodity of high economic value, and the success of its cultivation largely depends on seed quality, particularly the viability and vigor of the seed. Seed moisture content plays a critical role during storage and germination, making proper seed drying essential to prevent deterioration while maintaining physiological quality. In addition to drying, the selection of an appropriate seedbed media is equally important, as it influences moisture availability, aeration, and the overall environment supporting seed germination. Although both factors have been studied separately, information regarding the optimal combination of drying duration and seedbed media for tomato seed germination remains limited. This study aimed to determine the effect of seed drying duration, seedbed media type, and their interaction on tomato seed germination. The research was conducted in Kuta Blang Village, Banda Sakti Subdistrict, Lhokseumawe City, and at the Agroecotechnology Laboratory, Faculty of Agriculture, Universitas Malikussaleh, from February to March 2026. A factorial Completely Randomized Design (CRD) with two factors and three replications was used. The first factor was seed drying duration (0, 1, 3, and 5 days), and the second factor was seedbed media type (napkin tissue, brown paper, and blank paper), resulting in 12 treatment combinations with 36 experimental units. Parameters observed included seed moisture content, maximum growth potential, germination rate, vigor index, growth speed, growth uniformity, normal seedling wet and dry weight, root length, and plumule length. The results showed that seed drying and seedbed media treatments each had significant to highly significant effects on most observed parameters, while their interaction significantly affected maximum growth potential, germination rate, vigor index, growth speed, and growth uniformity. The combination of 5 days of drying with brown paper media (P3S2) produced the best results for most parameters, while 3 days of drying with napkin tissue media (P2S1) also performed well. These findings indicate that selecting an appropriate combination of drying duration and seedbed media, whether applied separately or together, can enhance tomato seed viability and vigor, thereby supporting successful seedling establishment.

Keywords: growth power, moisture content, paper media, viability,