

Response of PGRs and chemical substance in seeds dormancy breaking and seedling growth of custard apple (*Annona squamosa* L.) cv. Local cultivar

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ABSTRACT

Custard apple seeds take a long time to germinate due to their hard and thick seed coat which requires breaking. There are many plant growth regulators (PGRs) available for the purpose. An experiment was carried out to know the most suitable PGR for breaking seed dormancy and faster growth of seedlings during February to May 2023 at Krishi Vigyan Kendra, Anjora, Durg, Chhattisgarh, India. There were seven treatments having two PGRs and one chemical (GA₃, NAA, KNO₃,) and each PGR had two levels (500 and 1000 ppm) of seed soaking treatment for assessing seed germination and seedling growth related attributes. The Treatment GA₃ @1000 ppm was found the best among all treatments with respect to minimum number of days required for seed germination (35.02 DAS), 50% seed germination (49.44 %), seeds germination percentage (85.69%), survival percentage (91.43 %) and seedling height (15.29, 20.71 and 24.74 cm at 60, 75 and 90 DAS, respectively). Furthermore, seedling growth parameters such as number of leaves plant⁻¹ (7.95, 9.31 and 10.38), collar diameter (0.29 & 0.39 cm) and root length (21.91 and 29.76 cm) at 60 and 90 DAS stages were also noted best in treatment GA₃ @1000 ppm. Additionally, the best performance of GA₃ @1000 ppm was also observed at 60 and 90 DAS in terms of fresh shoot weight (0.97 and 2.40 g), fresh root weight (0.15 and 0.44 g) and shoot and root ratio (0.60 and 1.17). Therefore, it was inferred from present experiment that GA₃ @1000 ppm should be used for breaking seed dormancy, optimum seed germination and better seedling growth related parameters in custard apple.

Keywords: Custard apple, dormancy, germination, PGRs, plant survival, seedling growth, shoot & root weight.