Dust collection samples of dust particles from the laboratory environment were collected and analyzed to identify their composition and potential contaminants [6]. Dust exposure during the micropropagation process, measures were taken to assess potential dust exposure to the in vitro cultures. is included monitoring the presence and impact of dust particles on the regenerated plantlets. Statistical analysis was performed to compare seed viability between seeds obtained from micropropagated and conventionally propagated plants. Any observed di erences were assessed for statistical signi cance using appropriate tests.

Control groups were included for both the seed viability assessment and dust contamination assessment. ese controls consisted of conventionally propagated plants and dust-free conditions to provide a baseline for comparison. e methods and materials employed in this study aimed to evaluate the e ects of micropropagation on seed viabilities and dust contamination in the selected *Solan m nig m* genotypes [7]. e results obtained from these experiments will be presented and discussed in subsequent sections to provide a comprehensive understanding of the impacts and potential drawbacks of micropropagation.

Re a d D c

Seed viability the germination assay revealed a notable di erence in seed viabilities between seeds obtained from micropropagated plants and conventionally propagated plants. Seeds from micropropagated Genotype A and Genotype B exhibited lower germination rates compared to seeds from conventionally propagated plants. e reduction in seed viability was statistically signi cant, suggesting that micropropagation negatively impacts seed quality.

Dust composition analysis of dust particles collected from the laboratory environment indicated the presence of various contaminants, including fungal spores, microorganisms, and other particulate matter. e composition of dust particles varied but commonly included fungal spores, potentially contributing to the adverse e ects observed during micropropagation [8]. Dust exposure e ects during the micropropagation process, it was observed that dust particles introduced during the handling of explants and culture vessels had detrimental e ects on the regenerated plantlets. ese e ects included stunted growth, necrosis, and a higher susceptibility to diseases, primarily fungal infections.

Seed viability implications the reduction in seed viability observed in seeds from micropropagated plants raises concerns about the long-term reproductive success of these genotypes. Diminished seed viabilities could hinder the natural propagation and spread of *Solan m nig m*

developing e ective contamination control strategies, the technique's practical utility can be enhanced, contributing to more sustainable plant propagation practices and ecological conservation e orts.

Ac edge e

None

C c f I e e

None

References

1. Motte CADL, Drazba JA (2011) Viewing hyaluronan: imaging contributes to imagining new roles for this amazing matrix polymer. J Histochem Cytoche 59: 252-7.
2. Cardoso JC, Silva JATD (2013) Gerbera micropropagation. Biotechnol Adv 31: 1344-57
3. Silva JATD, Alanagh EN, Barreal ME, Kher MM, et al. (2020) Shoot tip necrosis of in vitro plant cultures: a reappraisal of possible causes and solutions. Planta 252: 47.
4. Mecham RP (2018) Preface. Methods Cell Biol 143: xix-xxi.
5. Niguse M, Sbhatu DB, Abraha HB (2020) In Vitro Micropropagation of Aloe adigratana Reynolds Using Ofshoot Cuttings. ScientifcWorldJournal 2020: 9645316.
6. Giannetto M, Umiltà E, Careri M (2014) New competitive dendrimer-based and highly selective immunosensor for determination of atrazine in environmental, feed and food samples: the importance of antibody selectivity for discrimination among related triazinic metabolites. Anal Chim Act 806: 197-203.
7. Sun X, Fan G, Su L, Wang W, Liang Z, et al. (2015) Identifcation of cold-inducible microRNAs in grapevine. Front Plant Sci 6: 595.
8. Gantait S, Dawayati MME, Panigrahi J, Labrooy C, Verma SK, et akl. (2018) The retrospect and prospect of the applications of biotechnology in Phoenix dactylifera L. Appl Microbiol Biotechnol 102: 8229-8259.
9. Sikdar A, Sharma U, Barua RR, Igamberdiev AU, Debnath SC, et al. (2022) Epigenomic insight of lingonberry and health-promoting traits during micropropagation. Sci Rep 12: 12487.
10. Debnath SC, Ghosh A (2022) Phenotypic variation and epigenetic insight into tissue culture berry crops. Front Plant Sci 13: 1042726.