Fractionalization characteristics of sorghum microspores harvested across different developmental stages

Sweet sorghum is a vital biofuel crop with immense agricultural significance and establishing protocols for the invitro maturation of microspores at different stages can facilitate plant breeding endeavors. Understanding of pollen maturation pathways can be developed with the help of invitro approach for plant molecular genetics research. Therefore, sorghum plants were established under field and greenhouse conditions ensuring uniform regime for panicle harvest. To separate heterozygous populations of microspores, using percoll density gradient banding large numbers are required through. Four fractions (10%, 20%, 65% & 75%) were used as a density solution to differentiate cell developmental stages (mid uni-nucleate, late uni- nucleate, early bi-nucleate, mid bi-nucleate) as first stage. Initial visual confirmations were made for microspores developmental stages by measuring gametophyte diameters. Additionally, 25%, 35%, 55% & 65% along with 25%, 30%, 35%, 45% gradient as well as 45%, 55%, 65% & 75% gradient were used to microspores per their densities. The selection of right density gradient from the data obtained will standardize the gametophyte size differentiation protocol per developmental stages for further applications in plant sciences.