

Density gradient based separation of sorghum natural protoplasts for transformation

Sweet sorghum is an important biofuel crop, and research on its male gametes or microspores would facilitates the genetic understanding towards breeding improved lines. For genetic research, the sorghum microspores at different developmental stages were separated in Percoll gradient solutions per their sizes. The dynamic differences in density of said Percoll solutions were able to separate the maturation stages of sorghum microspores. This study involved the use of different density gradients to resolve distinct developmental stages of microscopes. The microspore developmental stages targeted were mid/late binucleate, early/mid binucleate, mid/late uninucleate, and early/mid uninucleate. The relationship between certain microspore maturation stages and Percoll density variations was thus sought. The research investigated what density of the solution was matching with the buoyancy of microspores as per the physiological transformations occurring during their different development stages. Separating immature sorghum microspores as natural protoplasts can contribute to advancements in agricultural yields by optimizing conditions for plant genetic transformations.