Induksi keragaman somaklonal dengan iradiasi sinar gamma dan selesi in vitro kalus pisang rajabulu menggunakan asam fusarat, serta regenerasi dan aklimatisasi plantlet (gamma irradiation for somaclonal variation induction and in vitro selection using fusaric acid in pisang rajabulu calli along with regenration and plantlet aclimatization

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Abstrak

pisang raja bulu is one of the most important bananas in Indonesia. However,, this plant low tolerance to wilt disease, caused by fusarium oxysporum f. cubense. Its mass cultivation is inhibited by the absence of variety tolerant to the disease. A wide range of genetic variability will be needed if selection for novel characters is to be conducted, especially when there is no source of resistance gene available for breeding materials. This research consisted of callus induction from primary explant, induction of somaclonal variation using gamma iradiation, and in vitro selection using fusaric acid, followed by regeneration and acclimatization of selected plantlets. The media applied for callus induction was MS (Murashige and skoog. 1962) +2,4-D 1 and 3 mg/l + NAA 0 and 0,1 mg/l and 2,4-D 5 mg/l + BA 0,5 mg/l + casein hidrolysate (CH) 500 mg/l. The applied gamma irradiation dosage were 0, and 0,1 mg/l and 2,4-D 5 mg/l + BA 0,5 mg/l + casein hidrolysate (CH) 500 mg/l. The applied gamma irradiation dosage were 0, 5.0, 7.5, 10 and 15 Gy. The irradiated cali was subsequently subcultures on selection media i.e., MS containing fusaric acid at 30 and 45 mg/l. The living calli was then regenerated on media containing BA, TDZ, eith or without proline and arginine. In addition, MS + kinetin 5 mg/l + 1AA 0,2 mg/l was applied for shoot development. The result showed that the most suitable callus induction media for pisang raja bulu was MS +2,4-D 5 mg/l +BA 0,5 mg/l +CH 500 mg/l. The gamma irradiation of 10 Gy produced somaclone lines which were able to proliferate bud nodules on selection media containing fusaric acid at 30 and 45 mg/l. The media for shoot development was MS + kinetin 5 mg/l + 1AA 0,2 mg/l. Plantlet obtained form the in vitro were then successfully acclimatized in the green house.