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IMPROVEMENT OF STEVIA REBAUDIANA BERTONI THROUGH GAMMA IRRADIATION AND MICROPROPAGATION

Stevia rebaudiana Bertoni is a perennial herb that belongs to the family of Asteraceae. It is a natural sweetener plant known as sweet leaf, estimated to be 300 times sweeter than cane sugar. It is one of the 154 members of genus *stevia* which produce sweet steviol glycosides. The potential of stevia has been regarded worldwide and fast becoming the best alternative sweetener due to the health conscious of excess sugar intake that linked to obesity, diabetes, heart disease, high blood pressure, tooth decay along with various other diseases. Since its first introduction to Malaysia 10 years ago, there are few setbacks in stevia cultivation and plantation. Low, insufficient and inconsistency supply of high quality planting materials for large scale commercial plantations is a major setback for stevia industry in Malaysia. Since 2012, Nuclear Malaysia has started a project on mutation breeding of stevia using acute and chronic gamma irradiation. From this project, several outputs have been successfully achieved such as potential stevia mutant lines, advanced tissue culture and mass propagation procedures. One stevia mutant line that exhibits desired agronomic traits and is adaptable to Malaysian climate has been successfully transferred through a collaboration with local stakeholder in Sabah, East Malaysia for pre-commercialization of stevia seedlings using advanced tissue culture technology. Recently, we are working closely with the community and farmers in Tuaran, Sabah on the propagation and cultivation of stevia as a continuous effort to enable sustainable stevia cultivation to become a source of new income generation for the farmers in near future. This paper will discuss on stevia improvement that includes mutagenesis using gamma irradiation, micropopagation, pre-commercialization and cultivation.

Country or International Organization

Malaysian Nuclear Agency

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