

Soluble starch synthase IIa (SSIIa) enzyme expression in endosperm and alkali disintegration in seeds of Myanmar rice cultivars.

ABSTRACT

Rice (*Oryza sativa* L.) is grown all over the world and consumed by human beings worldwide. It is the most important crop in Myanmar because it is the main staple food of the entire nation. Starch is the end product of carbon fixation in photosynthesis and is accumulated in storage organs as an energy source. It comprises 90% of the total dry matter in the rice grain and can mainly affect grain quality. Starch biosynthesis in cereal plants is catalyzed by four classes of enzymes, namely; ADP-glucose pyrophosphorylase (AGPase), soluble starch synthase (SSS), starch-branching enzyme (BE), and starch-debranching enzyme (DBE) (Smith et al., 1997; Myers et al., 2000; Nakamura, 2002; Fujita et al., 2006). Starch synthase proteins from rice and other plant species can be grouped into five classes, soluble starch synthase I (SSI), soluble starch synthase II (SSII), soluble starch synthase III (SSIII), soluble starch synthase IV (SSIV) and granule-bound starch synthase (GBSS). One gene for SSI, three genes for SSII (SSIIa, SSIIb, SSIIc) and, two genes for SSIII (SSIIIa, SSIIIb), SSIV (SSIVa, SSIVb) and GBSS can be found in rice (Hirose and Terao, 2004).

Keyword: Rice; Soluble starch synthase IIa; Enzyme.