***SUPER STARCHY1 controls rice grain development***

Scientists at DBT's National Institute of Plant Genome Research (NIPGR), New Delhi has found a rice gene, which was named as SUPER STARCHY1 (SS1) or ONAC025. This gene codes for a transcription factor, which are essential proteins that control a process. By performing multiple plant molecular biology based experiments, we have found the function of SS1. We have seen that this gene is very active in only the rice grain, in both embryo and endosperm. In endosperm, SS1 causes the production of amylopectin rich starch, and hence the name SUPER STARCHY. SS1 also promotes synthesis of some types of seed storage proteins. Both starch and seed storage proteins are essential parts of the rice grain. SS1 is also responsible for formation of proper embryo. Research team has found that SS1 opposes vegetative growth of the plant and at the same time favors rice grain formation.

Rice is the staple food of a large majority of people. Grain is the edible and commercially important part of the rice plant. It is our quest to understand the molecular mechanisms underlying the process, so that the quality and yield of rice grain can be enhanced. Rice grain is composed of embryo and endosperm. The endosperm covers a large area of the mature grain,
and is eaten by us. The major constituents of endosperm are starch and seed storage proteins. Starch has two components, amylose and amyllopectin. Higher quantities of amylose make rice non-sticky while amyllopectin makes rice sticky. Different regions have preference for either type of rice. Sticky rice is easier to eat with chopsticks and is favored in some dishes as sushi. Though seed storage proteins form a small part of rice endosperm, they are an important protein source since rice is cheaper than legumes, and is consumed by a larger population.


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