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## Japanese journal of crop science

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#### Carbohydrate Metabolism in Leaf Blades and Stems of Rice Cultivar Akitakomachi at the Ripening Stage

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#### Abstract:

Akitakomachi was cultivated in a paddy field, and the lower leaves and about 1/3 of an ear were clipped off before and immediately after heading, respectively. The effect of the treatments on the carbohydrate metabolism in the leaf blades and stems including leaf sheathes at the ripening stage was analyzed. The leaf blades accumulated the photosynthate mainly as sucrose but a little as starch. With the increase of carbohydrate content in the leaf blades, the ratio of sucrose in the carbohydrate increased. The accumulation of carbohydrate in the stems was principally similar to that in the leaf blades except that starch largely accumulated when a large accumulation of carbohydrate occurred. At early ripening stage with a vigorous increase of ear weight, the content of carbohydrate, especially sucrose, decreased in the leaf blades and more remarkably in the stems. At middle to late ripening stage, the rate of increase in ear weight gradually decreased. After ear weight reached its maximum, photosynthate began to reaccumulate in the leaf blades and stems; especially, the accumulation of sucrose was remarkable. The activity of sucrose phosphate synthetase in the flag leaves at the ripening stage gradually decreased as leaf senescence proceeded.

#### Keywords:

Akitakomachi, Carbohydrate metabolism, Ear clipping treatment, Leaf blade clipping treatment, Ripening stage, Sucrose accumulation, Sucrose phosphate synthase

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