短 報

Hideo Toriyama:** Preliminary note on the potassium movement in the motor tissue of *Mimosa*.*

鳥山英雄: オジギソウの運動組織に於けるカリウムの移動について (予報)

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Leaflets, petioles or whole branches of *Mimosa pudica* appear to wilt by stimulation. This change in turgor is supposed to have a close relationship to the behavior of electrolytes, which seem hitherto not to have been analyzed in detail. The present author was able to observe the shift of potassium in the motor tissue of primary pulvinus at the bending movement as described below. The cells or the tissues of the under side of pulvinus are chiefly dealt with in the present report.

The material fixed with McCallum's cobaltinitrite method*** was employed on paraffin sections. Acid fuchsin was used for staining. Before receiving a stimulus, the crystals of potassium cobaltinitrite appeared in the central vacuole (Fig. 1). And after receiving a stimulus, these crystals did not appear in the central vacuole, but large crystals are observed in the intercellular spaces (Fig. 2). This phenomenon was especially observed in the zone which includes numerous intercellular spaces. This zone was called "P₂-zone" by the present author in a previous paper (1954a). It can be supposed that this phenomenon shows that potassium solution is issued from the motor cells into intercellular spaces at the bending movement. The recovery of bending movement may be brought about by the recovery of turgor which is caused by the permeation of the potassium solution into the motor cells.

Concerning this fact, it is advisable to refer to Imamura's work on the opening mechanism of the stomata of *Zebrina pendula* etc. (1943). From this experiment it can be suggested that the permeability of the cytoplasm against potassium increased at the bending movement and its recovery. The detail will be reported in near future.

References

IMAMURA, S 1943. Jap. Journ. Bot. 12

TORIYAMA, H. 1954a. Cytologia 19

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*** The material was fixed at 0°c for 20 to 24 hours.

Explanation of figures

Fig. 1. Motor cells before bending movement.

Fig. 2. Motor cells after bending movement.

cr, crystals of potassium cobaltinitrite;

tv, tannin vacuole.

× 540.