OCCURRENCE OF INCLUSION BODIES IN THE GUARD CELLS OF THE STOMATA OF MOSAIC-TOBACCO PLANTS

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Recently SHEFFIELD (1936) reported that inclusion bodies might occur in every cell over large areas of the epidermis of a plant affected by certain viruses, while they were not found at all in the guard cells of the stomata. According to her investigation, no plasmodesms could be shown to exist between the guard cells and the surrounding tissues, and it was suggested that the virus was therefore unable to reach the guard cells.

In 1923, however, MCKINNEY, ECKERSON and WEBB observed the intracellular bodies in the guard cells of leaf stomata in mottled

Photomicrographs 1—2. Inclusion bodies are seen in the guard cells of stomata. n, nucleus; s, striate material; x, X-body. ($\times$ ca. 400).

HIRAYAMA, S. and YUASA, A.: (1935) *Ann. Phytopath. Soc. Japan*, V, 197—205.

MCKINNEY, H. H., ECKERSON, S. H. and WEBB, R. W.: (1923) *Jour. Agr. Res.*, XXVI, 605—608.

SHEFFIELD, F. M. L.: (1936) *Ann. Appl. Biol.*, XXIII, 506—508.

wheat plants. The present writers also reported in a previous paper (1935) that the X-bodies were proved to be present in the guard cells of the stomata of tobacco plants affected with mosaic virus. In the present work they carefully reexamined the materials and confirmed the previous results (Photos. 1, 2).

In their observation the writers used fresh materials and mounted in aceto-carmine, while SHEFFIELD made observation on materials which were fixed with CARNOY's fluid and treated by FEULGEN's nucleal-staining method and stained with orange G. So in the latter case a disintegration of the cell inclusions might occur during the course of cytological treatments. It was shown by the writers that the X-bodies became obscure after about one hour when the materials were treated with the aceto-carmine.

From the result of the writers' investigations, it may be concluded that inclusion bodies occur in the guard cells of the stomata, but that the acetic acid used in the fixation may however disintegrate or dissolve them.

モザイク病となつた煙草の氣孔の孔邊細胞にも 異常小體は存在する (摘要)

著者等(1935)は既に、モザイク病となつた煙草(秦野種)の氣孔の孔邊細胞にも X-body 及びその他の異常小體の見られることを報じたが、最近 SHEFFIELD, F. M. L. (1936) は、モザイク病に侵された煙草の氣孔の孔邊細胞には細胞内異常小體は存在しないと述べてゐる。

そこで著者等は再び同じ材料を調べ、X-body 及び striate material 等が孔邊細胞中に明かに存在することを確認得た(寫眞 1, 2)。研究に際しては醋酸カーミン法によつたが、これ等異常小體は醋酸によつて次第に侵されることもわかつた。SHEFFIELD は CARNOY 液で固定し、FEULGEN の核染色法とオレンジ G. とによる染色方法で觀察してゐるから、その操作中に孔邊細胞の異常小體は破壊されたものと想像される。