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The Structure and Development of the Seed Coat and Cause of Delayed Germination in Mellilotus alba

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BOTANICAL ABSTRACTS

STRUCTURE AND FUNCTION OF THE STIGMA IN RELATION TO THE GERMINATIVE REQUIREMENTS OF THE POLLEN IN THE EASTER LILY

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Abstract

Stigma of Easter Lily is papillate. Over the surface of the papillae a mucilaginous layer is formed and from this mucilaginous layer the pollen absorbs the requisite amount of water for germination. The papillae and nearly all cells of the stigma previous to the opening of the flower contain much starch which is transported from cell to cell chiefly in the form of dextrin. As the starch disappears in the papillae the mucilage appears on the outside of their walls.

The pollen germinates on almost any media or in almost any solution that furnishes the required amount of water.

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THE STRUCTURE AND DEVELOPMENT OF THE SEED COAT AND CAUSE OF DELAYED GERMINATION IN MELLILOTUS ALBA

J. N. MARTIN

Abstract

The epidermis of the ovules forms the much elongated cells, known as the Malpighian cells of the seed coat. The outer walls of the Malpighian cells are much thickened and are composed of layers differing in physical properties. One of these layers is the light line which in most seeds is impervious to water until it is modified by weathering or by some artificial means. The light line is apparently only more compact cellulose for it hydrates quickly in water at 80° C. and then gives a distinct cellulose reaction and is permeable to water.

The action of the weather on seeds lying out over winter is

to open the line and thus permit the embryos of the seeds to obtain water.

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THE RELATION OF CUCURBIT MOSAIC TO WILD CATNIP

J. H. MUNCIE

Cross inoculations from mosaic cucurbits to non-cucurbitaceous hosts, according to published records, have been unsuccessful except in a few cases. Doolittle obtained infection by aphis inoculation from mosaic cucumbers to *Martynia louisiana*, while Jagger obtained infection on *Lobelia crinus* var. *Gracilis* and *Helianthus debilis*. Preliminary experiments by the writer show that cucurbit mosaic can be transmitted to *Nepeta cataria* by the insertion of crushed mosaic leaf tissue of mosaic gourd into the stems of Catnip. Typical mosaic symptoms appeared on the tips of the leaves of the catnip in about three weeks, and after six weeks practically every leaf showed the mosaic. Mosaic of catnip has not been observed in the field by the writer, but with the ease of obtaining infection and chances of insect inoculation, this perennial host may be a source of early infection to cucumbers in the field.

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THE NODAL INFECTION OF CORN BY *DIPLODIA ZEAE*

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Dry rot of corn caused by *Diplodia zeae* was very prevalent in Iowa the past season (1921), particularly in the central portion of the state. The disease originates in the old stubble and stalks of the previous season from which the spores of the organism are blown to the corn plants. Under conditions of extreme moisture and high temperature the spores germinate, grow and attack the corn.

Infection may take place on the roots, stems or ears of the corn. Seedlings growing over old Diplodia-infected stubble may have their roots attacked by the dry rot fungus. Spores blown to the