



Fig. 2. Photograph of agar diffusion plate. Centre wells contain immune serum to isolate A5279, surrounding wells contain antigens (A), A5279; (B), *S. rimosus*

hyphae. Because of the close similarity of these strains to *S. rimosus* and the common production of oxytetracycline it is suggested that they are variants of *S. rimosus* with coiled to spiral sporophores separated by long internodes and would be more satisfactorily included under the name *S. rimosus* forma *pseudo-verticillatus*.

Further evidence of the relationship between A5279 and *S. rimosus* has been obtained serologically using the Ouchterlony gel diffusion method (Fig. 2). It appears that A5279 and *S. rimosus* have four and possibly five common antigens. A5279 has one strong antigen which cannot be detected in *S. rimosus* and conversely all the *S. rimosus* antigens are to be found in A5279. This would again suggest a very close relationship and at the same time a strain difference which is illustrated by the different aerial mycelium morphology.

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<sup>1</sup> Sobin, B. A., Finlay, A. C., and Kane, J. H., U.S. Pat. 2,516,080 (July 18, 1950).

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examples in the plant field, thus a full review will not be given here, but only a few more pertinent examples will be cited. Segregation and/or reduction in chromosome number was induced in cells of onion root tips which had been treated with 1-4 per cent sodium nucleate. Regular genetic segregation occurred with greater frequency than would be expected if the distribution of the chromosomes were a random process<sup>2</sup>. Onion bulbs stored at 5°-6° C. showed a reductional grouping<sup>3</sup>.

During the growing season of 1954, 17 plants with both glossy and semi-glossy seed-stems were found in a population of about 500 of the Yellow Sweet Spanish onion inbred B 12132. The inbred B 12132 is not homozygous for the semi-glossy character. Jones, Clarke and Stevenson<sup>4</sup> reported that glossy foliage was recessive to non-glossy. Apparently, semi-glossy is dominant to glossy but recessive to non-glossy. Bulbs stored at the University of Idaho, Branch Experiment Station, Parma, Idaho, at temperatures of 5°-7° C. were set in the field in late March.

Two bulbs—one a B-line (fertile) bulb and the other an A-line (male-sterile) bulb—were selected for further study. The B-line bulb produced three seed-stems, one of which was semi-glossy and two were glossy; however, only a few seeds were obtained. No plants survived from seed produced on the umbel of the semi-glossy seed-stem. The foliage of the progeny of the two glossy seed-stems was glossy.

The A-line bulb produced two seed-stems, one of which was semi-glossy and the other glossy. The A-line bulb was crossed to a glossy plant. No seed was obtained from the glossy seed-stem. All the plants from the seed on the semi-glossy seed-stem, which had been crossed to glossy, were semi-glossy. The  $F_1$  when crossed to glossy gave a segregation ratio of 1 : 1.

The  $F_1$  hybrid of a cross between glossy and semi-glossy foliage is semi-glossy. The  $F_2$  segregates in the ratio of 3 semi-glossy to 1 glossy. In this particular instance, both types appeared on the same plant. Progeny from the glossy seed-stem bred true for glossy. Similarly, progeny from the semi-glossy seed-stem bred true for the semi-glossy character. Only true-breeding individuals were obtained. A change occurred in the inheritance pattern of the glossy seed-stem character of the onion. The change could have been caused by the loss of a segment of chromatin carrying the dominant gene, though the high percentage of plants with both glossy and semi-glossy seed-stems makes this unlikely. The change could have been caused by a point mutation, but two simultaneous mutations would have to occur. Somatic reduction of chromosomes could be responsible for two true-breeding lines in an otherwise heterozygous individual. If the latter possibility is true, then the common bulb onion, *A. cepa*, offers an excellent opportunity for study of somatic reduction in plants.

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## GENETICS

### Possible Genetic Evidence of Somatic Segregation in *Allium cepa* L.

REDUCTION in somatic nuclei has been noted in various plants and animals by a number of workers. This communication reports an instance in which both glossy and semi-glossy seed-stems were found on the same onion plant. Huskins<sup>1</sup> has reviewed many