ALBINISM IN *XANTHOMONAS SESAMI*

Xanthomonas sesami Sabet and Dowson, the incitant of bacteriosis in sesame (*Sesamum orientale* L.), is a typical yellow-pigment phytopathogenic bacterium. The pigmentation has been observed to be a constant character of all the cultures maintained by the writer.

During a routine subculturing operation, a white but *Xanthomonas*-like colony was detected to be growing among the yellow-pigmented ones in two culture tubes. These colonies were carefully transferred to sterilized water columns and streaked on NA medium in petridishes. The pigmented colonies of the tubes were also processed similarly to serve as checks. All the colonies developed in the first case were non-pigmented but with typical colony characteristics of the xanthomonads. The check petridishes did not reveal any change of pigmentation in the colonies. The consistency of colony colour was further confirmed by growing them on various media (NA, PDA, PSA* and potato wedges) and at different temperatures (15°, 20°, 25°, 30°, 35° C). The colour pattern of the colonies of non-pigmented and pigmented forms did not show any deviation.

On young and healthy host plants, both the forms produced typical symptoms of the disease on inoculation. The white and the yellow forms were compared for their morphological, cultural and biochemical characteristics and bacteriophage susceptibility. A close similarity of characters was evident between the chromogenic and achromogenic forms of the cultures. It was, thus, suggestive that the non-pigmented forms had arisen from the yellow-pigmented cultures by mutation. The achromogenic (albino) forms were, therefore, identified as 'albino' strains of *X. sesami*.

In 1969, the writer[3] recorded the development of an 'albino' form in *X. uppalii* Patel. The present investigation provides two more evidences for the development of 'albino' mutants in xanthomonads.

In an earlier article[3], the writer had suggested that only those phytopathogenic non-pigmented bacterial forms should be accepted as 'albino' xanthomonads, whose original pigmented *Xanthomonas* species are traceable in nature and such forms should be specified as achromogenic (albino) strains of the existing chromogenic *Xanthomonas* spp. It would not be, therefore, inappropriate to mention that the recent efforts to group the colourless, *Xanthomonas*-like bacteria, which occur only in achromogenic forms in nature, such as *X. padalii*[5], under the genus *Xanthomonas*, need further careful taxonomic assessment so that re-occurrence of the dilemma created by the grouping of 7 non-pigmented phytopathogenic bacterial forms as species of the genus *Xanthomonas*[1], could be avoided.

The genus *Xanthomonas* was created by Dowson[2] in 1939 in order to separate pigmented and non-pigmented polar flagellated phytopathogenic bacteria, grouped together as species of *Pseudomonas* by Lehman and Neumann[4]. The main distinguishing criterion of the genus *Xanthomonas* was the production of a typical yellow coloured growth by the bacterial mass on nutrient glucose agar and sterilised potato slants. The criterion still acts as the most conspicuous phenotypic feature of the genus *Xanthomonas*. The attempt to identify such non-pigmented bacterial forms as species of *Xanthomonas*, for which the evidences of origin from pigmented xanthomonads are not yet available; therefore, cannot be justified as natural and practicable. It would be less confusing if these organisms are accommodated as species of *Pseudomonas*, a genus which is undoubtedly more heterogeneous than *Xanthomonas* and which seems to be composed of forms that have no apparent phylogenetic relationship. The approach would prove more rational, logical and systematic and also helps to maintain the remarkable uniformity of the genus *Xanthomonas* undisturbed.

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*Composition of peptone sucrose agar (PSA) medium; peptone 5 g, sucrose 20 g, Na_2HPO_4 2 g, $FeSO_4$ 0·5 g, Ca $(NO_3)_2$ 0·5 g; and 1000 ml water.

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3. Durgapal, J. C., *Curr. Sci.*, 1969, 38, 391.
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IN SITU GERMINATION OF POLLEN GRAINS IN *PINUS ROXBURGHII* SAR.

KONAR[1] studied the morphology and embryology of *Pinus roxburghii* and gave its comparative account with *Pinus wallichiana*. According to him the pollen grains are shed at the four-celled stage and they germinate forthwith after pollination during March and April. However, the Fig. 14 given by him representing the oldest pollen grain displays the three-celled condition and it is the wall of the pollen grain that was labelled as the tube nucleus. It does not show the tube nucleus, although the disintegrated first prothallial cell, healthy prothallial cell and the antheridial cell are shown.

In our material collected during January 1971 from the Government Botanic Garden, Ooty, we