

in the intensity of the disease though no variety was found to be entirely resistant. Information on varietal resistance to the disease being not available in the country, studies were carried out on these aspects at the Indian Agricultural Research Institute, New Delhi, during the period 1968-1970.

Eight hundred and forty germplasm lines of tomato belonging to the EC (Exotic Collection) and IC (Indigenous Collection) series were obtained from the plant Introduction Division of the IARI and these were screened for resistance.

Five seedlings of each line were raised in earthen pots 30 cm size and the plants were inoculated at the flowering stage by spraying the bacterial suspension obtained from a culture aged 24 hours with OD around 0.70-0.87 at 610 m $\mu$ . A rocker sprayer was used for inoculative application of the suspension. High humidity was maintained by spraying water on the plants at regular intervals. Observations on the reaction of each line was recorded after a period of two weeks. The severity of leaf and stem infection, extent of yellowing and defoliation were all taken into consideration for rating the lines into the various categories of resistance.

Of the 840 lines tested, none was found to have any absolute genetic resistance. The lines rated in the category 'slightly diseased' were as follows:

*EC Lines:* EC 1143, 2699, 2751, 2804, 3218, 4532, 5632, 6050, 6591, 7919, 8259, 8286, 8741, 9412, 12489, 12491, 16059, 16271, 16278, 16290, 17168, 21606, 26318, 27900, 31820, 35237, 35250, 35274, 35282, 37274, 37301 and 42663.

*IC Lines:* IC 6486 P2, 6504 P1, 13940 A, 16060 P1.

The authors are grateful to the Head of the Division of Mycology and Plant Pathology, IARI, New Delhi-12, for the facilities provided for these studies.

Rice Research Station,  
Mannuthy, Trichur,  
Kerala, April 25, 1975.

JAMES MATHEW.\*  
P. N. PATEL.†

\* Part of the theses submitted by the senior author to the Post-Graduate School, IARI, New Delhi, in part fulfilment of the M.Sc. and Ph.D. degree programmes.

\*\* Junior Research Officer, Rice Research Station, Mannuthy, Trichur.

† Senior Plant Bacteriologist, IARI, New Delhi-12.

1. Alexander, L. P. and Lincoln, R. E., *Plant Disease Reporter*, 1942, 136, 51.
2. Avezdezhnova, G. P., *Sb. Trud. Aspir. Molod. Manch. Sotrud*, 1967, 8, 264.

### Barite Mineralization Near Village Khairasian, Dist. Pauri, Garhwal, U.P.

A promising zone of barite occurrence has recently come to light, on the hill-slope, about half a km south-west of Khairasain (78° 44' 30" E : 29° 53' 20" N), located five km south-east of Satpuli (78° 42' 45" E : 29° 55' N) on the left bank of Eastern Nayar river. Garhwal Dist., U.P. The mineralized zone is associated with the lowest quartzite member of the Nagthat Formation near its contact with the underlying greenish grey phyllites of Chandpur Formation. A barite band varying in thickness from 1 to 1.5 m occurs conformably overlying the associated quartzite and phyllite which have a regional NW-SE strike with 50°-55° southwesterly dips. The continuity of barite along the strike has been traced for over 1/2 km. towards the north-east of Malethi.

The barite is coarse and is of grey, greyish white, white and buff colours. Coarse crystalline variety of barite is found as vein fillings along fractures and joints in the adjoining quartzites. Microscopic study has revealed strain effects like bent cleavages and twin lamellae and granulation along fractures. Chalcopyrite, galena, sphalerite and pyrite are present in small amounts, apart from irregular patches of secondary iron oxides.

As the known occurrence of barite in the Himalaya are mostly associated with carbonate suite of rocks, the association of barite mineralization with metaclastic sediments in the present area is of interest. Association of barite beds inter-layered with quartzites of Pre-Cambrian age has also been recently reported from Talya, Chitradurg District, Karnataka (Radhakrishna and Srinivasaiya, 1974).

The origin and economic viability of the barite occurrence near Khairasain is being investigated and shall be reported soon.

The authors are grateful to Prof. R. S. Mithal, Head of the Department of Geology and Geophysics, for extending facilities for the above study.

Department of Geology and Geophysics,  
University of Roorkee,  
Roorkee (U.P.), July 22, 1975.

J. K. GUPTA.  
N. G. K. NAIR.  
R. S. CHATURVEDI.

1. Radhakrishna, B. P. and Srinivasaiya, C., "Bedded barytes from the Pre-cambrians of Karnataka." *Jour. Geol. Soc., India*, 1974, 15, 314.