singly to one of the ten fertile heterozygotes of the same population and thus ten back-cross populations (BC_1) were raised separately for each sterile line. Segregation for fertility and sterility was recorded. It was observed that out of 10 populations grown, 8 showed 1:1 segregation (fertile: sterile) like the previous generation while in the remaining two, segregation occurred in the ratio of 6 fertile to 10 sterile plants. However, no clear explanation could be found from the above data. For further clarification, a number of individuals, six at least, were randomly selected from the fertile counterpart of the above BC_1 and they were crossed with one another in all possible combinations within each line. Seeds were collected from the above 15 single cross combinations, each grown in a separate row for recording segregation properly. It was observed that out of ten families studied in F_2s three showed only one type of segregation ratio (3:1) while in the remaining seven, two types of ratios (9:7 and 3:1) were recorded; the P value ranging between 0.50 and 0.70 in each case. The results showed that out of the above two segregating ratios one (namely, 3:1) was common in all ten families. In addition, some families had 9:7 ratio which appeared to have arisen out of crossing between individuals heterozygous for two gene pairs, assuming each pair assorting independently. The other ratio which was common to all (e.g. 3:1) would possibly be the outcome of digenic parents for male sterility assuming one of them to be homozygous and the other heterozygous for the dominant gene.

The present results indicate that two male sterile genes (MS_1, MS_2) are involved in this species and either of them when homozygous and recessive (i.e. ms_1ms_1/ms_2ms_2) causes male sterility. It would appear that 10 sterile parents used initially as seed parents in the crossing programme were mixtures of two different genotypes. However, further study for identifying all the five sterile genotypes is in progress.

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POLLINATION STUDIES IN *CALONYCTION MURICATUM*

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Calonyction muricatum (L) G. Don (Syn. *Ipomoea turbinata* Lag) is a wild twiner of the family Convolvulaceae. The species grows on fencings and hedges during rainy season, and the swollen flower pedicels are used as vegetable. There are two varieties, namely, white-seeded and black-seeded.

The seeds of this plant were collected from different localities of Rewa. The plants were grown in the Botanical Garden of the Government Science College, Rewa, during rainy and summer seasons of 1981 and 1982.

To assess the extent of pollination, the flowers were subjected to different pollination regimes such as, natural open-pollination, self-pollination, cross-pollination, natural cross-pollination and intergeneric pollination with *Ipomoea crassicaulis*. The flowers were also subjected to 'no pollination' to see if there was any parthenocarpy. The pollination value was calculated by the formula,

$$\text{Pollination value (\%)} = \frac{\text{Number of mature seeds}}{\text{Number of mature seeds} + \text{Number of immature seeds}} \times 100$$

Despite repeated trials made in every flowering month on hundreds of flowers, no fruit setting was observed in any of the pollination methods employed, except in self-pollination. Hence the specimen is strictly self-pollinated.

Mechanism of self-pollination

At the early stage of floral development, the stamens and the styles are of equal length. Later, the style grows very fast so that the stamens remain below the stigma. When the style has completed its growth, the slow growing stamens resume their faster growth. One day earlier to the day of anthesis and at the time of anthesis, the anthers burst and a powdery mass of pollen adheres to the stigma. The growth of stamens continued even after the pollination has taken place, and within one or two days the corolla as well as androecium become shrivelled.

Pollination value

Table 1 presents the pollination value of *C. muri-*

Table 1 *Pollination value (%) of C. muricatum in different months*

Months	Pollination value (%) White variety	Pollination value (%) Black variety
Aug. 81	82	85
Sep. 81	90	93
Oct. 81	91	89
Nov. 81	74	68
Dec. 81	40	43
Jan. 82	35	31
Feb. 82	42	40
Mar. 82	25	23

catum in different fruit setting months in a year. It is evident that the pollination value is maximum (93 %) in September in the black-seeded variety. A gradual decrease in such a value was observed in the following months reaching the minimum (31 %) in January. A gradual increase in pollination value was seen in February (40 %) but a sudden decrease in March (23 %) marked the end of fruit setting. The summer months like April, May, June and July did not support any fruit setting.

It appears that the mode of pollination varies from species to species in Convolvulaceae. The majority of the plants shows either cross-pollination or self-pollination. *Ipomoea batatas*, one of the economically important species of the same family shows both types of pollination[2-5]. *C. muricatum* is a strictly autogamous plant[1] and no alternative mode of pollination is fruitful.

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LITHOTHELIUM NEOINDICUM A. SINGH—A NEW NAME FOR *L. INDICUM* A. SINGH

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A NEW lichen element was recently described[1] by the present author as *Lithothelium indicum* A. Singh (1986). However, there already existed[2] *Lithothelium indicum* Patw *et al* (1980) for an entirely different taxon from South India. This was an inadvertent omission of the present author. Since *L. indicum* A. Singh is a later homonym of *L. indicum* Patw *et al* the former is being renamed as *L. neoindicum* A. Singh.

Synopsis

Lithothelium neoindicum A. Singh nom. nov. syn. *Lithothelium indicum* A. Singh, *Curr. Sci.*, 1986, **55**, 198. (non Patw *et al*).

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EXPRESSION OF SOME LEAF RUST RESISTANCE GENES AT DIFFERENT GROWTH STAGES IN WHEAT AGAINST RACE 77-A

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LEAF rust resistance in wheat can be detected in seedlings or in adult plants and is known to be controlled by nearly 30 major genes termed as *Lr* genes[1]. These genes confer race-specific resistance which is effective against one or more rust races. Seedling resistance may remain effective at subsequent stages of the plant growth or may stop expression as the plant grows. Three Lr genes namely *Lr*12, *Lr*13, and *Lr*22*a* have been reported to confer adult plant resistance (APR) which can be detected only after the plants have acquired a definite age[2].

Leaf rust race 77-A is a highly virulent and most predominant race in India since 1972. Single gene lines for all the known Lr genes derived from *Triticum*