located in this generation. These plants were sibbed by hand emasculation and pollination and the seed thus obtained was sown in 1983–84 in an unreplicated 3 × 3 m plot with 60 cm row spacing and 10 cm plant spacings. The crop received 40 kg each of N, P and K per hectare and one post-sowing irrigation. The data on important components of yield (listed in table 1) were collected on 10 random plants of the recombinant as well as parents for comparison.

The data on different characters given in table 1 show the superiority of new ideotype over the parent one, YID1 in respect of plant height, number of primary and secondary branches per plant, pods on branches as well as on the whole plant (figure 1), seeds per plant and seed yield per plant. It also shows significant superiority over the other parent (71/6809) in respect of seeds per pod, seed weight and oil content. It surpassed both the parents in respect of primary branch per plant single plant seed yield, and production of compact and erect branches. Dark green thick medium size leaves, semi-dwarf plant with stiffer, non-lodging and non-breaking stem are the other features of economic importance of this genotype.

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SOME ASPECTS OF THE DALY GAP

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A DALY Gap exists where the volume of intermediate eruptives is less than the volumes of more basic and more acidic eruptives. It is sometimes argued that the presence of a Daly Gap in a basalt-rhyolite volcanic province argues against crystal fractionation models being applicable to the petrogenesis of the eruptives[1,2]. It will be argued here that the Daly Gap in many basalt-rhyolite volcanic provinces may not necessarily argue against crystal fractionation models being applicable.

In the following discussion we will assume that crystal fractionation of mafic melts, resulting in trachytic and rhyolitic eruptives, occurred in basalt-rhyolite provinces. Complicating factors such as the volumes of basic, intermediate and acidic rocks forming intrusions, the different viscosities of melts of differing compositions and the definitions of the terms basic, intermediate and acidic are ignored here as they may unnecessarily complicate the simplistic model that is being examined.

Mafic eruptives such as alkali basalts, transitional basalts and tholeiites are generated in relatively large volumes through the partial melting of mantle material. Such large volumes constitute a factor in support of the eruption of large volumes of mafic eruptives.

A factor which decreases the volume of mafic eruptives is the differentiation of some mafic melts to form trachytic and rhyolitic melts through crystal fractionation. It is well known geologically, however, that in most basalt-rhyolite volcanic provinces mafic eruptives are far more voluminous than either trachytic or rhyolitic eruptives. For the Tertiary Focal Peak Shield Volcano in southeastern Queensland and northeastern New South Wales, Australia, the ratio of the volumes of acidic to mafic eruptives is estimated to be between 1 to 10 and 1 to 40 while trachytic eruptives probably account for less than one percent of the volcanic pile[3]. Consequently, the factor of crystal fractionation probably favours the formation and eruption of relatively minor volumes of trachytic eruptives. A factor against the frequency of eruption of trachytic melts is, however, the possibility of additional crystal fractionation giving rise to rhyolitic melts.

The factor of crystal fractionation should, at first sight, be even less in favour of the eruption of rhyolitic eruptives than is the case for trachytic eruptives. In other words it would appear that the relative frequency of occurrence of the various rock types should be mafic > intermediate > acidic and not, as is commonly observed in the field, mafic > acidic > intermediate.

However, there is an important factor in favour of the eruption of differentiated rhyolitic eruptives. This factor is that rhyolitic melts cannot differentiate out of the rhyolite field as they are at, or close to, the ternary minimum in the $NaAlSi_3O_8$-$KAlSi_3O_8$-SiO_2 melt system. In a very crude sense it can be stated that the rhyolite field acts as an "inescapable black hole" collecting some differentiating liquids. It is suggested then that this factor may be of sufficient influence to give rise to rhyolitic eruptives being generally more voluminous than trachytic eruptives.

If the above argument is correct then the Daly Gap cannot be used readily as an argument against the use of crystal fractionation models in petrogenetic studies of volcanic rocks in basalt-rhyolite provinces in which a Daly Gap exists.

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INSECT-TRAPPING BEHAVIOUR AND DIEL PERIODICITY IN *SAUROMATUM GUTTATUM* SCHOTT (ARACEAE)

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THE species *Sauromatum guttatum* exhibited a syndrome of sapromyophilly and has been shown to trap in large numbers the species of flies and some beetles belonging to the groups, Muscidae, Calliphoridae, Sarcophagidae, Sepsidae, Otitidae, Bruchidae, Scarabaeidae etc[1]. The mechanism of pollination in the genus is very similar to the one described for *Arum nigrum*[2], the only difference being that window pane-phototrapping mechanism is absent in the former. The present note describes the tropical species of *Arisaema*[3].

A mixed fly and beetle pollination for this species has been described earlier [4–5]. This paper describes in detail the events of anthesis, diel periodicity and mechanism of insect trapping and release.

Figure 1 gives three diagrammatic sections of inflorescence of *S. guttatum* showing the stages of trapping (figure 1A), locking (figure 1B) and release (figure 1C) of the insects by the blossom. The individual inflorescence consists of (a) lip with scalloped margins, (b) neck enclosing a girdle of male flowers and (c) floral chamber enclosing the female as well as sterile flowers. The enclosed column within the spathe consists of a terminal appendix, a girdle of male flowers within the neck region, a bunch of sterile flowers and a girdle of female flowers within the floral chamber. The lip consists of blotches of purple and red colour and rolls over itself to one side. In the neck region the wall of spathe touches the girdle of male flowers at the two sides and leaves sufficient space laterally for the entry of insets. The main floral chamber where insects are trapped has dark ourgundy colour within. This is followed by a more or less transluscent area through which light filtered and trapped insects which dashed against it, to find an exit. Yeo[7] preferred to call such areas as 'window panes' in place of the term 'light windows' used earlier for tropical *Arisaemas*[6].

The following account describes various stages of anthokinematic changes within the blossoms.

Anthesis: It is triggered at midnight at 03.00 hr in February and March, to be followed by the release of enclosed appendix and stench production. By 05.30 the appendix is completely out, the two lateral entrances at the sides of staminate girdle are created and the production of stench started. By 07.45 hr, insects begin to alight the lip or appendix, appear agitated and walk towards the neck through which they suddenly fall inside the floral chamber from any of the two lateral entrances. The entry of insects is synchronised with the emission of stench from the appendix.

Trapping (figure 1A): The pollination syndrome appears to be on the principle of deceit, as neither nectar nor pollen is offered as food. The smell of decaying dung purhaps created the stimulus which drew fertilized females towards the floral chamber, from where