

ABNORMAL FLOWER COLOUR IN CHINA ROSE (*HIBISCUS ROSA-SINENSIS* L.)

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ABSTRACT

China rose (*Hibiscus rosa-sinensis* L., Family - Malvaceae) is one of the important ornamental plants of the world. The plant has a numbers of medicinal uses including hair care, cosmetic skin protection, controlling diabetes and even preventing cancer. Extensive cultivation and experiments of this plant were carried out to develop different cultivars of various flower colours from commercial point of view. At the same time, some changes of flower colour have been occurred naturally. In the present study four observations of abnormal flower colour in China rose in Haringhata block of Nadia district was noticed. In each case a single Hibiscus plant beard two different coloured flowers. Probable causes of such occurrences were also assumed in the present investigation. It seemed that the chimeric or somatic mutation were the causes of such abnormalities.

Keywords: China Rose, *Hibiscus Rosa-sinensis*, Malvaceae, Abnormal Flower Colour, Chimeric Mutation, Somatic Mutation, Haringhata

INTRODUCTION

China rose (*Hibiscus rosa-sinensis* L.) is a well known member of the family Malvaceae. This evergreen shrub is an important ornamental plant species of tropics and subtropics (Kumar and Singh, 2012). This East Asian native plant is the national flower of Malaysia. The flower is used in hair care (Adhirajan *et al.*, 2003) and it is also used to shine shoes in different parts of India. It can also be used as a pH indicator. When used, the colour of the flower turns to dark pink or magenta in acidic solutions and in basic solutions it becomes green. *Hibiscus rosa-sinensis* L. is considered to have a number of medical uses in Chinese ethno-botany (Batta and Santhakumari, 1970; Sachdewa and Khemani, 2003). It may have some potential in cosmetic skin care. The extract from the flowers of *Hibiscus rosa-sinensis* L. has been observed to function as an anti-solar agent by absorbing ultraviolet radiation (Sharma *et al.*, 2004). Numerous varieties, cultivars and hybrids are available, with flower colors ranging from white through yellow and orange to scarlet and shades of pink, with both single and double sets of petals (Banerji and Datta, 1986). Venkataramani (1948) observed some morphological abnormalities of flowers of *Hibiscus esculentus* L. Studies on some examples of plant abnormalities was also studied earlier (Biswas, 1934). In the present investigation, four incidences have been studied where two different coloured flowers in a single China rose plant were noticed. The incidence of a single Hibiscus plant bears two different coloured flowers is claimed to be first in this regard.

MATERIALS AND METHODS

This study was mainly based on observation of incidences. Four different cases of abnormal flower colour in China rose (*Hibiscus rosa-sinensis* L.) were noticed at various places of Haringhata block of Nadia district, West Bengal (Figure 1). Extensive observation was carried out throughout the year on the flower colour of the above mentioned four Hibiscus plants. Was the colour of the flowers according to the branches of the plant or was it solitary case observed critically. Relevant photographs were taken.

Plant Species

China Rose (*Hibiscus rosa-sinensis* L.), Family – Malvaceae

Location of the plants of abnormal flower colour:

1. Digba (East), P.O.- Barajaguli, Haringhata, Dt.- Nadia, W.B.

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2. Mohanpur, P.O.- Krishiviswavidyalaya, Haringhata, Dt.- Nadia, W.B.
3. Sukantapalli, P.O.- Subarnapur, Haringhata, Dt.- Nadia, W.B.
4. Nagarukhra, P.O.- Nagarukhra, Dt.- Nadia, W.B.

RESULTS AND DISCUSSION

Case – I

Pink patch on the white petal of a Hibiscus flower has been found in the courtyards of a residential house of Digha (East), Barajaguli within Haringhata Block (22.95°N, 88.57°E) of Nadia district (W.B.). The others flowers of that plant were completely white i.e. the same Hibiscus plant beard two different types of flower, one flower was white with pink patch and the rests were purely white. As the same branch did not beard same type of flowers, it can be assumed that it may be due to chaimaric mutation of petal caused by natural mutagen (Figure 2a, 2.b & Table).

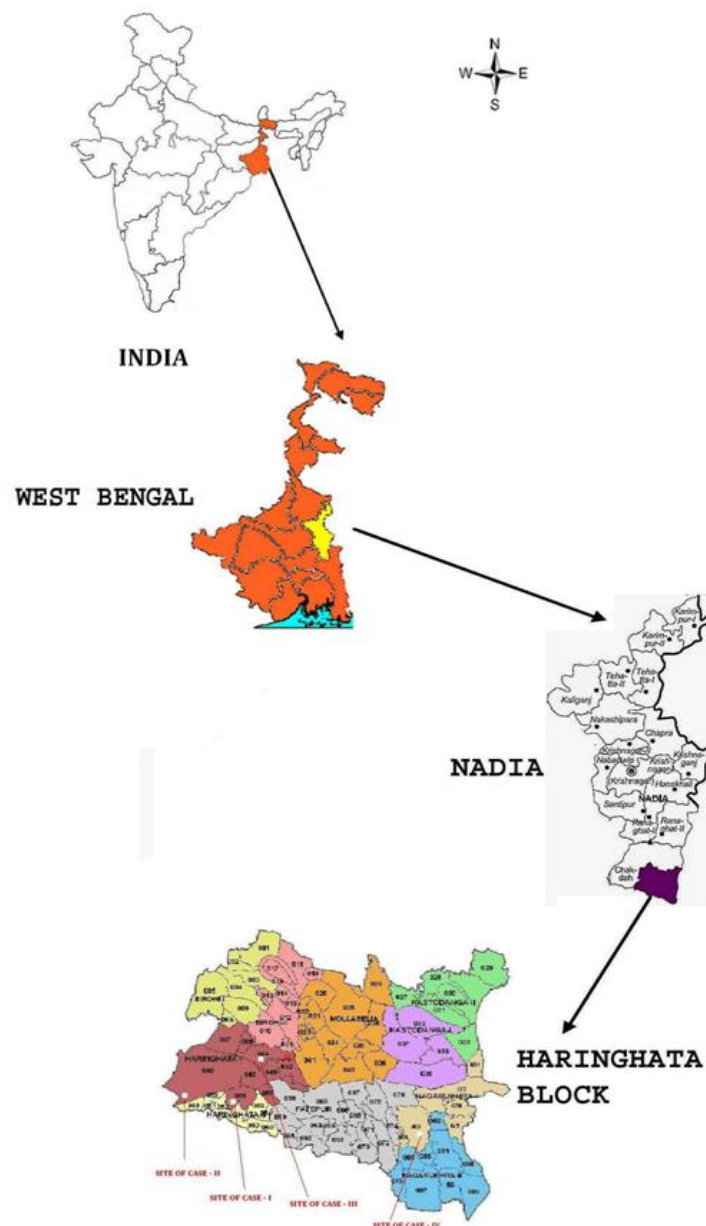


Figure 1: Site of incidences of different cases of abnormal flower colour of China rose



Figure 2: 2.A & 2. B. Case I, 2.C & 2.D. Case II, 2.E & 2.F. Case III, 2.G. Case IV

Case – II

Beside the Kanchrapara – Haringhata road of Mohanpur, Haringhata of Nadia district, W.B. a China rose plant was found where two different types of colour of flower have been noticed. The colour of flowers of one branch was red and the flowers of other branches were pale yellow. If somatic mutation has occurred in axillary bud during the development of that branch this phenomenon can be took place (Figure 2.C, 2.D & Table).

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Case – III

At Sukantapalli, Subarnapur within Haringhata block of Nadia district (W.B.), a China rose plant was observed. The colour of all the flowers of that plant was pale yellow. But one flower was found where a red patch was noticed on the pale yellow petal. The colour of other flower of that particular branch was as usual pale yellow. Hence, the red patch on the petal may be due to chaimaric mutation (Figure 2.E, 2.F & Table).

Case – IV

A peculiar China rose plant was found at Nagarukhra within Haringhata block of Nadia district (W.B.). The plant bears two types of flower colours – one is red and another is light pink. These two types of flowers were noticed in two different branches. Probable cause of this abnormality was due to the somatic mutation on auxillary bud during development of stem branch (Figure 2.G & Table).

Table 1: The cases of abnormal flower colour in Chaina Rose (*Hibiscus rosa sinensis*) along with their place of occurrence and probable causes of such colouration

Sl. No.	Places occurrence	Flower colour abnormalities	Probable cause
1.	Digha (East), P.O.- Barajaguli, Haringhata, Dt.- Nadia, W.B.	Pink patch on the white petal	Chaimaric mutation on petal
2.	Mohanpur, P.O.- Krishiviswavidyalaya, Haringhata, Dt.- Nadia, W.B.	Same plant bears two type of flowers colours – one is completely red and another is pale yellow	Somatic mutation on stem branch during bud development
3.	Sukantapalli, P.O.- Subarnapur, Haringhata, Dt.- Nadia, W.B.	Red patch on the pale yellow petal	Chaimaric mutation on petal
4.	Nagarukhra, P.O.- Nagarukhra, Dt.- Nadia, W.B.	Same plant bears two types of flowers colours – one is red and another is light pink	Somatic mutation on stem branch during bud development

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Research Article

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