

Correspondance

SELECTIVE CAMOUFLAGE IS PROBABLY INHERENT WITHIN GENOMES : A FIELD NOTE

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Majority of species among animals have inherent genetic capability to express "camouflage" in their behavior as an alternative device of saving themselves from being "hunted" ensuring survival. This is a physiologically controlled instinct to be expressed in individual's behaviour because the adaptive camouflage identifies colour on both sides. In other words, individuals have inherent instinct to be aware of "their colour" and the colour of their expected background which could minimize their identity. These are evolutionary adaptive instincts whose controlling sequences have been randomly distributed among genomes of animal kingdom. I as a student of evolutionary and behavioural genetics have observed and studied in detail such an "instinct" among mosquitoes, flies and several grasshoppers. Such a camouflage instinct is different from camouflage generated by the incumbent species on account of mimicry.

This makes it clear that exercise of camouflage alone is not mimicry but mimicry does require camouflage-expression. Also the species which have inherent capacity to mimic can exercise camouflage and or, adapt in shape and size also. In mimicry, certain species like mantids (Fig.1) grasshoppers chameleons, (Fig.2) frogs, spiders and a few more temporarily change their colour as per the need of the surrounding; also, even mimicry can be induced as observed in some spiders (Goswami, 2009)

Interestingly, the species which can only camouflage but can not temporarily

change their shape or size or colour of their coat do not possess inherent genetic makeup for mimicry. Birds, commonest example is of parrots do hide in a suitable background.

We have seen tiger in wild hiding in such dried bushes where his presence could not be visualized/ located even within the distance of 20 meters, unless the tiger's head moved due to a bunch of flies. We are aware of several such wild animals in nature who try to protect themselves as well as attack on their preys by suitable camouflage. But mostly, such animals can not change or mimic.

This is adaptive camouflage distinctly observed in insects. In adaptive instinct of camouflage, as shown in these pictures, the individual of a species selectively opts for its hide and survival.

Figures 3&4 are one of the best evidences to exhibit the selective camouflage among wild flies in a forest; the yellowish fly sits on the yellow -pale leaf (devoid of chlorophyll) while the greenish blue fly saddles on a normal green leaf of the same plant.

This adaptive behavior is well known among vertebrates; even *Homo sapiens* not an exception.

These pictures above (Fig.3 & 4) are one of the best evidences to exhibit the selective camouflage among wild flies in a forest; the yellowish fly sits on the yellow -pale leaf (devoid of chlorophyll) while the greenish blue fly saddles on a normal green leaf of the same plant.



Fig.1 : A species of mantid was hiding on leaves of *Calotropis prosera*. As well known mantids have capacity to mimic and generate camouflaging colour to escape from lifting away by birds.



Fig.2 : A species of chameleon has changed itself to exactly match the twigs of dried *Gleichenia* (a fern) twigs; photographed in wild forest area of Panchmarhi



Fig. 3 : A species of a fly opting to saddle on the yellow leaf of a croton like plant so as to escape immediate attention; this background suits the colour of abdomen and wings of the fly.



Fig.4 : Photographed simultaneously as Fig 3, the fly with bluish green shade and dull wings comforts on green leaf of the branch of the same plant.

Comments

This can be plainly argued (Goswami, 2009) that all individuals are not equally responsive for adaptive pressures and mimicry and or, camouflaging alone, may not be exclusively environmental impact but has to be dependent on individual's genetic makeup based interactions. Mimicry in nature reflects "genetic endowment of evolution" (Goswami, 2009) variably inherent within genomes; for instance, among angiosperms members of the family Orchidaceae exhibit classical mimicry. Among lower animals the trait is

also variably common (mimicry or only camouflaging) but among vertebrates mimicry is seen among amphibians, reptiles but in majority of other vertebrates (birds, mammals) only camouflaging is expressed as an inherent trait and the individuals adapt for protection by opting such a background which would minimize their visibility to their enemies. In only-camouflaging-trait, the individuals do not change their shape/size and or colour but strictly possess "extra consciousness for suitable hiding, Indisputably, this needs physiological control thereby exhibiting behavioural coverage for better protection.

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