

LEAF SENESCENCE IN SOME PLANT SPECIES OF WEST BENGAL WITH SPECIAL REFERENCE TO SUPERCYCLONE AMPHAN

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Leaf senescence was earlier observed and reported during pre-Amphan and post-Amphan periods in Taro (*Kochu*) and Fig (*Dumur*) plants respectively in West Bengal (Nandi and Dev Roy, 2020). The present observations on leaf senescence also relate to both pre-Amphan and post-Amphan months in 2020 in various other plants (Figs. 1-9) from West Bengal. It was observed that in Jack fruit (*Artocarpus heterophyllus*) plant leaf, rib region dying or affecting was usual with the reddening of leaves in post Amphan days (Fig. 1). In Banana (*Musa* sp.) leaf, wind effect, even if of moderate velocity, it was found that both sides of the leaf blade were torn into many pieces from margins towards the stout mid rib (Fig. 2), during both pre-Amphan and post-Amphan days. In Peepal (*Ficus religiosa*) and Guava (*Psidium guajava*) trees, leaf aging showed almost the similar effects (Figs. 3 and 4) during post Amphan as observed in other tall plant species such as in Banyan trees (*Ficus bengalensis*). Leaf senescence or yellowing usually proceeded from anywhere of the leaf blade area of Banyan plant in pre Amphan period presumably being more or less uniformly thick, while browning effect was noted from leaf base in post Amphan period due to strong wind effect on leaf base or on leaf stalk and mid rib regions (Fig. 5). After Amphan, Banyan leaf was found to fall on the ground before being yellow all over the blade and/ or dark browning- dying effects. It was noticed that after a month in post-Amphan period, the leaves of both *Ficus religiosa* and *F. bengalensis* plants (Figs.4-5) showed apparently accelerated early aging as observed in southern West Bengal, presumably due to wind velocity stress factor of super cyclone.

During pre-Amphan period, in Periwinkle plant, *Catharanthus roseus* (*Nayantara*) leaf aging impact was noticed as yellow spots anywhere on the leaf (Fig. 7), though gradual progression of yellowing towards the apex (Fig. 9) as well as all over the leaf blade was usual especially in elongated leaves of tub grown plants (Fig. 6). In plants, in general, impact of leaf aging on veins or ribs appeared last when leaves fell from plants or found drooping leaf blades, while in the post-Amphan period, the aging effect was found to be initiated from the leaf base area. In bottle gourd (*Lagenaria* sp.) leaf, in pre- and post-Amphan days, yellowing usually initiated from apical portions of leaf blade and also from one or both broad basal angular leaf areas (Fig. 8). This was subsequently found progressing towards the middle and eventually covering all over the blade, along with dorsally curling on and drying with dark brown hues, followed in accordance with yellowing of bottle gourd leaf as seen from a residential fencing grown plant.

Leaf senescence is known to proceed with age, involving an intricate regulatory pathway that responds to the life stages of the leaf and to various endogenous and exogenous environmental factors (Buchanan-Wollaston *et al.*, 2005; Lim *et al.*, 2007). In deciduous forest plant, leaf senescence is a yearly event usually happened in autumn. However, senescence is not a chaotic breakdown but a highly complex and dynamic process, following a precise timetable driven by genetic, developmental, and environmental factors (Jansson and Thomas, 2008). It may be mentioned that leaf aging or yellowing/ browning in trees and crop plants depends on the

hormonal issues (<http://www.planhormones.info/>), nutritional requirements of flower and fruits and also on leaf senescence and life cycle issues varied from species to species (https://en.wikipedia.org/wiki/Plant_senescence).

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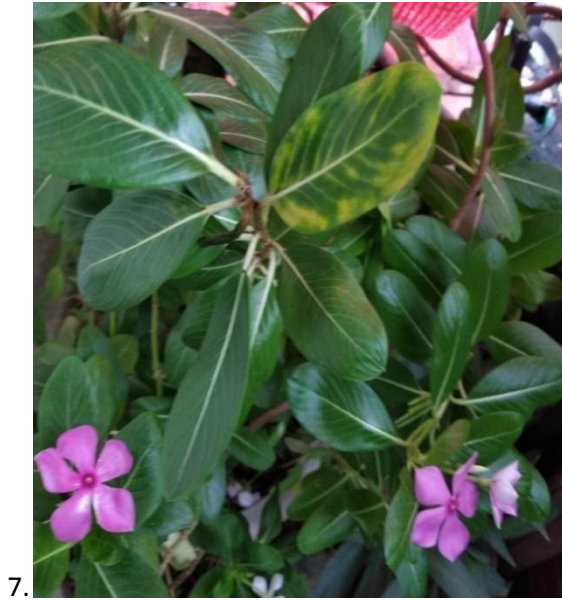


2.



Figs. 1-4. Showing leaf senescence of Jack Fruit leaf (Fig. 1), Banana leaf (Fig. 2), Guava leaf (Fig. 3) and Peepal leaf (Fig. 4).





Figs. 4-8. Showing leaf senescence of Banyan leaf (Fig. 5), Periwinkle (*Nayantara*) leaf (Fig. 6) and leaf aging initiation in live plants of *Nayantara* leaf (Fig. 7), and Bottle gourd leaf (Fig. 8).



Fig. 9. Gradual aging towards the apex in Periwinkle (*Nayantara*) plant