

**SUMMARY
AND
CONCLUSIONS**

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The genus Ipomoea comprises the largest number of species within the convolvulaceae. Throughout the world Ipomoea is usually estimated to contain 600-700 species. Ipomoea carnea Jacq is one of the major weed in India. Though it is a weed, it is used for fencing, as a hedge around the fields to protect the crops from grazing animals. However, on the basis of morphological and anatomical characters Ipomoea carnea, Jacq is separated into two sub species i.e. Ipomoea carnea sub sp. carnea Jacq and Ipomoea carnea sub sp fistulosa Martex choisy.

Both the sub species of Ipomoea carnea are growing as a weed every where. It does not require any specific type of soil and climate. The plant is about 15 to 20 ft in height shrubby and woody in nature. The stem is erect, much branched, cylindrical, green with milky latex. Inflorescence is polychasial cymose type. Flowers are regular, actinomorphic, bisexual, pentamerous and hypogynous. It develops showy pinkish coloured corolla with long tube and funnel or infundibuliform.

There is very little or no work on the Ipomoea species. In the present investigation the attempts have been made to study the various aspects of the senescence in Ipomoea carnea sub species. Senescence is vital activity in the plant and it is termed as aging. Which is usually related to accumulation of somatic structure and increase in anabolic activity. The effects of Gibberelic acid, Indole acetic acid

and Kinetin were studied during the senescence.

In the present investigation both the sub species of Ipomoea carnea studied with respect to their physical properties of leaves, organic constituents like moisture percentage, Relative water content, Titratable acid number, chlorophylls, polyphenols and carotenoids, The investigation was extended to study the inorganic constituents like Na, K, Ca, Mg, Mn, Cu, Fe, Zn etc and two enzymes peroxidase and acid phosphatase.

The significant findings during senescence in both the sub species of Ipomoea carnea are recorded as follows.

- 1) The average leaf weight and density increased in the senescent leaves of both the sub sp of Ipomoea carnea. This may be due to increase of sodium and calcium in the senescent leaves of Ipomoea.
- 2) The increase in moisture content brings about the dilution effect on accumulated salts of sodium and calcium in the senescent leaves of Ipomoea species.
- 3) The significant increase in TAN can be correlated with accumulation of calcium in the senescent leaves and respiratory activity.
- 4) The chlorophylls are declined in the senescent leaves of both the sub species of Ipomoea carnea. However the treated leaves with growth harmones like G.A., IAA and kinetin show retension or increase in chlorophylls resulting in delaying of senescence.
- 5) The treatment of G.A. and IAA accelerate the breakdown of

carotenoids, however Kinetin retarding the breakdown rate of carotenoids and delaying the senescence in both the subspecies of Ipomoea carnea.

- 6) The GA, IAA and Kinetin treated leaves show decrease of polyphenols while accumulation of polyphenols is significant in untreated and senescent leaves of both the sub species of Ipomoea carnea.
- 7) The results of leaf treatment with G.A., IAA and Kinetin show the decrease of Na content as the hormonal effect. This may be due to the stimulation of Na mobilization. However Na accumulation is recorded in senescent leaves of both the sub species of Ipomoea carnea.
- 8) There is considerable decrease of K content in senescent leaves of both species suggesting the mobilization of K. The G.A. and IAA treated leaves of both the sub species of Ipomoea carnea, maintain higher levels of K than the control and Kinetin treated ones. This higher level of K in treated leaves is delaying the senescence.
- 9) K/Na ratio decreased due to withdrawal of K and accumulation of Na in the senescent leaves. However the G.A. and IAA treated leaves of both the sub species of Ipomoea carnea maintain high levels of K resulting in higher K/Na ratio.
- 10) Increased Ca content in the senescent leaves indicate the breakdown of chloroplasts and other metabolites and less mobilization of this cation. However the G.A., IAA and Kinetin treated leaves show the decline of Ca content

which suggest that Ca either properly utilized or mobilized as a result of hormonal stimulation. The treatment cause the delay of senescence.

- 11) There is similar trend of decline of Mg content in the senescent leaves which suggest the withdrawal of Mg from senescent leaves. The treated leaves of sub species of Ipomoea with G.A. and IAA show increased Mg content. This suggest that the G.A. and IAA maintain the levels of Mg and delaying the senescence.
- 12) We record the decline in Fe content in the senescent leaves of both the sub species of Ipomoea carnea, Jacq. Iron is required in many metabolic activities like chlorophyll synthesis and loss of Fe in senescent leaves suggest its withdrawal from senescent leaves. The treated leaves with G.A., IAA and Kinetin show no significant change in the Fe content and maintain its high level causing delaying of senescence of both the sub species of Ipomoea carnea.
- 13) The analysis of Mn status in both the sub species of Ipomoea carnea, Jacq shows that there is decrease in Mn content during senescence. GA and IAA treated leaves show the stimulation for Mn absorption and its accumulation, however the kinetin treated leaves show decrease of Mn content in both the sub species of Ipomoea carnea.
- 14) In the present investigation we found considerable decline in Cu content in senescent leaves of both the sub species of Ipomoea carnea. The treated leaves of both

the sub species of Ipomoea carnea with G.A. and IAA show slight stimulation for accumulation of Cu, however the kinetin treated leaves of both the sub species show slight decline of Cu.

- 15) Zn content decreased in senescent leaves of both the sub species of Ipomoea carnea, however G.A. and IAA treated leaves of both the sub species show slight increase of Zn content which may be due to stimulation caused to increase and maintain the Zn level. However the Kinetin treated leaves show decrease of Zn content.
- 16) In the present investigation the activity of peroxidase and acid phosphatase enzymes increased during the senescence of both the sub species of Ipomoea carnea.

As a conclusion of the present investigation we may state that most of the metabolites decrease and catabolic activities increase during senescence. However the treatment of G.A., IAA and Kinetin maintain the metabolic activities and causing delay of senescence in both the sub species of Ipomoea carnea.