

SUMMARY AND  
CONCLUSION

The present work was carried out with the view to finding the variation patterns with respect the flavonoid glycosides contents of Tribulus terrestris. It is needless to say that in the course of time, the plant Tribulus terrestris has been gaining importance for its medicinal value. From the time immemorable this plant is being use in Ayurveda to cure the diseases or set right disorders of humans. Infact several medicines of Ayurvedic origin are on shelf in the market. With the late realization of importance of Ayurvedic medicines in curing diseases without creating any side effects has attracted many multinational pharmaceutical companies to study the active ingradients involved in it. However, systematic co-ordinated work to identify active ingredients on one hand, and the variation occurring as a result of the change in the environmental condition and subsequently introduce in the active principle of ingredients in these compound on the other has not been investigated. As it is known that the variations are of different magnitudes both endogenous as well as exogenous in nature. Endogenous is one caused by genetic variation, and exogenous are one which are induce due to environmental factors such as soil, moisture availability and temperature etc. Extensive work in identifying and characterizing flavonoid glycosides

which are active ingredients of this plant has been known; but the correlative aspects of study is scanty and therefore entire work in the present investigation mainly tries to correlate it cytological variation, the environmental variation with the occurrence of flavonoid glycosides both in leaves and seeds. For this purpose the plants have been collected from different ecogeographical conditions such as Kolhapur, Solapur, Satara and they have been studied further for their meiotic variation, pollen morphological variation and variations in the flavonoid glycosides of leaves and seeds. Meiotic study in buds was carried out in laboratory after fixing buds. Where as in order to study its variation in pollen grain both pollen fertility study as well as exine stratification aspects have been investigated. To investigate later aspect i.e. sporoderm pattern the acetolysed pollens were exposed under scanning electron microscope (SEM) projection in high resolution. To study the ecogeographic variation on flavonoid glycosides content the samples of various localities were extracted for flavonoid glycosides by standard method and chromatographically analysed. Both paper chromatographic and TLC techniques have been employed.

To know the influence of trace elements on flavonoid glycoside metabolism two trace element solutions viz. Zn and Mn were prepared at varying concentrations of 15, 20 and 25 ppm and sprayed on plants cultivated in the garden. After the month

time from the plant material both seed and leaves were independently extracted for flavonoid glycosides and they were separated chromatographically. The results of above investigation have been tabulated and discuss under the light of available literature. The conclusions have been derived accordingly and they are as follows :

1. Tribulus terrestris has  $2n = 24$  chromosome number and 12 distinct bivalents.
2. Two chromosomes are have nucleolar organiser and possess secondary constriction.
3. Meiosis-I is normal. However, it does not ends with immediate cytokinesis.
4. Meiosis occurs in the plane perpendicular to first plane of division but occasionally the failure in the disjunction of chromosome in one of diads occurs.
5. This failure in disjunction does not appear to cause sterility in the pollen grain by the fact that pollen fertility ratio is very high.
6. Sporoderm stratification of pollen as identified under SEM is prolate Spheroidal, Striate, reticulate, polyforate, apperture is circular sulcus, ragged the average diameter 82.6  $\mu\text{m}$ .
7. Nitrogen content of plant is poor.

8. Variation in the flavonoid glycosides occur with variation in the ecogeographical conditions.
9. The warmer dry condition appears to affect adversely certain flavonoid glycosides.
10. The micromutrient Zn and Mn sprayed in the form of mixture profoundly influence, both occurrence and intensity of certain flavonoid glycosides.