CONCLUSION

The data presented in the foregoing pages leads to following conclusion

1. Wheat seeds are highly temperature resistant and it can tolerate direct heating upto 70°C and its proteins and enzyme proteins are not denatured at such a high temperature.

2. Ascorbic acid content decreases while its utilization is enhanced during germination by temperature pretreatment indicating its active participation in the anabolic processes.

3. There is a parallel trend observed for AA and SH. It suggests a protective role of SH towards AA.

4. Both oxidative enzymes catalase and peroxidase show an inverse relation. Lesser peroxidase activity is seen during reproductive differentiation. Peroxidase activity has been considered as an index of senescence which is confirmed here while catalase activity has been related to vigour of germination.

5. Hydrolytic enzymes are stimulated by thermal treatment as under water stress.
6. Sugars increase by thermal treatment indicating the protective role to protoplasm against desiccatory effect of thermal stress.

7. There is a relative fall in histones, parallel rise in DNA content during germination and reproductive differentiation. However both show an increase.


10. Increased metabolism by thermal pretreatment is manifested in increased growth and yield.

11. AA metabolism is enhanced during the reproductive phase. This biochemical finding is further supported by histochemical localization. Similarly biochemical findings on histones and AA-FR-peroxidase enzymic activity are also confirmed by histochemical studies. Histochemical detection of the metabolites shows a convergence in the treated as well as untreated seeds. The thermal treatment of seeds enhances the synthesis of the decisive substances like ascorbic acid.
12. Thermal pretreatment has been likened with vernalization treatment and earlier flowering in thermal treated plants can be compared with vernalization effect.

13. Growth and development are integrated and interrelated processes.

By the temperature pretreatment of seeds, production and utilization of AA takes place at an enhanced rate, thereby producing a highly activated metabolic state during germination. Further, under proper thermo and photo inductive conditions in the shoot apex at the time of floral induction as well as subsequently in the developing spike during their reproductive differentiation, increase in electrolyte flow augments the ATP formation and consequently DNA and RNA are synthesized at a faster rate leading to enhanced synthesis of protein and enzyme protein. Consequently, this results in quicker laying down of growth centre, cell division and cell enlargement and in this process accelerated formation of free radical charge transfer complex during the period of reproductive differentiation provides extra electron energy. This thus confirms the ascorbic acid, nucleic acid, protein metabolism concept of Chinoy, 1967.