Summary & Conclusion
(9) **SUMMARY & CONCLUSION**

The present study was designed to carry out macroscopic and microscopic study of fruit of *Benincasa hispida* (Thunb.) Cogn (Cucurbitaceae) along with evaluation of multiple pharmacological activities to elucidate its mechanism of action. These activities includes evaluation of in-vitro antioxidant, anti depressant, anxiolytic, anti-psychotic, anticonvulsant, nootropic, antiulcer, anti-inflammatory, analgesic and immunomodulatory activities. We can summarize our research findings in following sequence.

i) The fruit of *Benincasa hispida* was authenticated by comparing morphological and microscopical characters of the plant.

ii) Phytochemical screening of the fruit of *Benincasa hispida* under study reveals the presence of triterpenoid lupeol, steroid beta-sitosterol and flavanoid iso-vitexin.

iii) Various in-vitro techniques revealed anti-oxidant potential of methanolic extract. The mechanism for these includes scavenging of free radicals viz. super oxide radicals, hydroxyl radicals and inhibition of lipid peroxidation.

iv) Methanolic extract (300 mg/kg & 1 g/kg) possessed mild to moderate anti-psychotic activity with significant anxiolytic and anti-convulsant activity.
v) Methanolic and petroleum ether extract (300 mg/kg, p.o.) of *Benincasa hispida* possess significant gastric anti-ulcer activity. The mechanism of anti-ulcer activity could be through inhibition of acid secretion, strengthening of gastric mucosal barrier and through anti-oxidant mechanism.

vi) In addition to anti-ulcer activity, methanolic and petroleum ether (300 mg/kg, p.o.) extract of *Benincasa hispida* possess significant anti-inflammatory and peripheral analgesic activity.

vii) Methanolic extract (100 mg/kg & 300 mg/kg, p.o.) also showed mild immunoprotective activity. The mechanism of this activity can be attributed to inhibition of myelosuppression.

Finally we can conclude from our study that,

- Methanolic extract of *Benincasa hispida* showed in-vitro anti-oxidant potential with significant anxiolytic and anti-convulsant activity but showed mild anti-psychotic and immunomodulatory activity.

- Methanolic and petroleum ether extracts possessed significant anti-ulcer, anti-inflammatory and peripheral analgesic activity.

- All these activities can be associated with mainly the presence of flavanoids, triterpenoids and steroids.
The underlying mechanism can be attributed to its antioxidant, anti-histaminic and anxiolytic potential.

Further, the involvement of endogenous prostaglandins, sulphhydryls and nitric oxide in the gastric mucosal protection can not be ruled out.