Summary & Conclusions
7. SUMMARY AND CONCLUSIONS

In conclusion our data suggest that

1. Fruit juice of *E. officinalis* produces beneficial effects on glucose and lipid metabolism in animal models of type 1 and type 2 diabetes mellitus.

2. In addition to antidiabetic activity fruit juice of *E. officinalis*, its fractions and gallic acid also possesses antihyperlipidemic, antioxidant and cardioprotective activity. The mechanism of antidiabetic activity appears to involve improvement of insulin sensitivity.

3. The n-butanol fraction showed relatively higher percentage of gallotannin (esters of gallic acid). The results of phytochemical analysis of fruit juice of *E. officinalis* correlate well with pharmacological activities. The total gallic acid content was found to be 2.34 %w/v in fresh juice, 12.9 % w/w in residual fraction and 23.4 % w/w in n-butanol fraction.

4. A good correlation was found between the effects on glucose and lipid metabolism and the total gallic acid content in esterified form in fruit juice of *E. officinalis*.

5. Gallic acid appears to be the active principle responsible for the potential effects mentioned above.

6. It appears that there is release of gallic acid from ester complexes present in the fruit juice of *E. officinalis* in simulated gastric juice and intestinal fluid.

7. It is possible that the gallic acid thus released from ester complexes be responsible for various pharmacological actions.