5. Summary

Phenological studies of the selected medicinal plants showed that the *Embelia ribes* and *Saraca asoca* the leaf fall, leaf bud break, flowering, fruiting and fruit fall was noticed from the month of October to July. July was found to be the optimum period for seed collection. In *Strychnos potatorum* the leaf fall, leaf bud break, flowering, fruiting and fruit fall was noticed from the month of May to January. January was found to be good for seed collection. Similarly in *Tinospora cordifolia* the leaf fall, leaf bud break, flowering, fruiting and fruit fall was noticed from the month of June to April. April was found to be the optimum period for seed collection.

Fruits of *Embelia ribes* and *Strychnos potatorum* are black in colour. The fruit of *Saraca asoca* is brown and the fruit of *Tinospora cordifolia* is red in colour. In all the selected species seeds, length vs breadth, length vs weight and breadth vs weight showed positive correlation. Highest level of correlation was observed between seed breadth and weight in *Embelia ribes*, length and weight in *Saraca asoca*, length and breadth in *Strychnos potatorum* and *Tinospora cordifolia* seeds.

In *Embelia ribes* mature seeds are ideal (15 weeks after anthesis) for storage, whereas in *Saraca asoca*, *Strychnos potatorum* and *Tinospora cordifolia*, mature and immature seeds stored for 10 days showed better performance. So storage is very important.

In all the selected plants seeds with higher initial viability and moisture content were ideal for germination and storability.

Among the seed treatments, the GA$_3$ treatment was found to be ideal to improve germination characteristics of selected seeds. However the GA$_3$ concentration higher than 4000 ppm resulted in poor germination.
The Lowest Safe Moisture Content (LSMC) for the seeds studied were *Embelia ribes* 30 %, *Saraca asoca* 50 %, *Strychnos potatorum* 30 % and *Tinospora cordifolia* 20 %.

Storage of *Embelia ribes*, *Saraca asoca*, *Strychnos potatorum* and *Tinospora cordifolia* seeds at 10º C was found to maintain the viability of seeds. Seeds stored at ambient temperature were less viable. Storage of *Embelia ribes* seeds at 10º C gave 52 % germination after 30 days of storage. Seeds of *Saraca asoca* and *Tinospora cordifolia* stored at 10º C gave 74 % germination after 30 days of storage. Similarly the seeds of *Strychnos potatorum* stored at 10º C gave 69 % germination after 30 days of storage.

Different fungicides have influenced the germination differently. Among the fungicides thiram was found to be ideal for *Embelia ribes*, bavistin for *Strychnos potatorum* and fosetyl for *Saraca asoca* and *Tinospora cordifolia*.

Compared to *Vitex negundo* leaf powder, *Azadirachta indica* leaf powder treatment was found to be effective in improving the germination and storability for 30 days in the seeds of *Embelia ribes*, *Saraca asoca*, *Strychnos potatorum* and *Tinospora cordifolia*.

Seeds of *Embelia ribes*, *Saraca asoca*, *Strychnos potatorum* and *Tinospora cordifolia* stored in controlled moisture content and temperature improved the germination and storability. In *Embelia ribes* the seeds with 22 % moisture content, stored at 10º C temperature for 20 days showed 62 % germination. Seeds of *Saraca asoca* desiccated to 46 % moisture content, stored at 10º C temperature, gave 67 % germination after 20 days of storage. In *Strychnos potatorum* the seeds with 27 % moisture content, stored at 10º C temperature for 20 days with 73 % germination. Seeds of *Tinospora cordifolia* desiccated to 18 % moisture content, stored at 10º C temperature, gave 80 % germination after 20 days of storage.
Storage of *Embelia ribes* seeds in wet vermiculite with 25 % moisture content improved the germination and storability. After 10 days of storage, the control (stored without vermiculite) showed 43 % germination, while seeds stored with 25 and 22 % moisture content in wet vermiculite gave 63 and 61 % germination respectively. In *Saraca asoca* the seeds stored in wet vermiculite with 45 % moisture content improved the germination and storability. After 10 days of storage, the control (stored without vermiculite) showed 76 % germination while seeds stored with 45 and 42 % moisture content in wet vermiculite gave 82 and 77 % germination. In *Strychnos potatorum* the seeds stored in wet vermiculite with 30 % moisture content improved the germination and storability. After 10 days of storage, the control (stored without vermiculite) showed 64 % germination while seeds stored with 30 and 27 % moisture content in wet vermiculite gave 71 and 67 % germination. Storage of *Tinospora cordifolia* seeds in wet vermiculite with 25 % moisture content improved the germination and storability. After 10 days of storage, the control (stored without vermiculite) showed 68 % germination while seeds stored with 25 and 22 % moisture content in wet vermiculite gave 78 and 71 % germination.

Among the materials (containers) studied, to store the seeds, polythene bags with 150 gauge thickness were found to be ideal.