

***Illicium verum* - 1999 collection**

<i>Collecting partner</i>	Le Dinh Kha and Nguyen Huy Son Research Centre for Forest Tree Improvement (RCFTI) Chem, Tuilem, Hanoi. Vietnam.		
<i>Replicating partner</i>	Brian Gunn and Chris Doran Australia Tree Seed Centre (ATSC) CSIRO, Forestry and Forest Products P.O.Box E4008, Kingston, Canberra Australia		
<i>Collection date</i>	November 15 th 1999		
<i>Seed source</i>	Tan Doan Commune, Van Quan District, Lang Son Province		
<i>Initial trials (Vietnam)</i>			
<i>Seed weight</i>	0.09 g (1000 seed weight = 87.1g)		
<i>Mc after processing (%)</i>	41.1 ± 1.2 (SD)		
<i>Initial germination (%)</i>	42.3 ± 7.0 (SD)		
<i>Initial trials (Australia)</i>			
<i>Arrival date</i>	December 13 th 1999		
<i>Mc at arrival</i>	28%		
<i>Germination (%)</i>	7% after 90 days		
<i>Cut test, viable seeds (%)</i>	32%		
<i>Desiccation trial (Vietnam)</i>			
<i>Target moisture contents</i>	38 and 35%		
<i>Desiccation trial (Australia)</i>			
<i>Mc range after desiccation</i>	6 – 23 %		
<i>Germination after desiccation</i>	0 – 9%		
<i>Storage trial (Vietnam)</i>			
<i>Fresh seeds mixed with moist sand at 10°C</i>	81.3% germination and 43.3% mc after 1 month. 53% germination and 43.8% mc after 3 months		
<i>Target mc (%)</i>	Fresh	38	35
<i>Germ. (%) after 1 month at 5°C ± SD</i>	28.0 ± 6.9	30.7 ± 4.6	44.0 ± 6.9
<i>Germ. (%) after 1 month at 10°C ± SD</i>	60.0 ± 4.0	56.0 ± 6.9	53.3 ± 8.3
<i>Germ. (%) after 1 month at 20-25°C ± SD</i>	22.7 ± 9.2	44.0 ± 4.0	4.0 ± 4.0
<i>Germ. (%) after 3 month at 5°C ± SD</i>	20.5 ± 11.8	35.5 ± 8.5	29.5 ± 6.6
<i>Germ. (%) after 3 months at 10°C ± SD</i>	57.5 ± 2.5	42.0 ± 30.1	66.0 ± 10.5
<i>Germ. (%) after 3 months at 20-25°C ± SD</i>	0	4.5 ± 2.5	0
<i>Mc (%) after 3 months at 5°C ± SD</i>	43.2 ± 1.5	39.6 ± 2.1	38.0 ± 1.6
<i>Mc (%) after 3 months at 10°C ± SD</i>	42.3 ± 2.1	40.2 ± 2.1	36.1 ± 2.9
<i>Mc (%) after 3 months at 20-25°C ± SD</i>	11.1 ± 0.4	15.1 ± 2.1	5.7 ± 0.4
<i>Storage trial (Australia)</i>			
<i>Seeds stored in moist vermiculite at 3 and 20°C, with an initial mc of 28%</i>	After one month, the moisture contents had increased to 42.5% and 46.4%, and germination was 14 and 0% at 3 and 20°C, respectively		
<i>Mc (%) before storage at 20°C</i>	25.1	21.5	28
<i>Mc (%) after storage at 20°C</i>	20.7	15.5	21.1
<i>Germ. (%) after 1 month at 20°C</i>	3	0	1
<i>Mc (%) before storage at 3°C</i>	23.7	22.8	28
<i>Mc (%) after storage at 3°C</i>	23.9	21.9	30.3
<i>Germ. (%) after 1 month at 3°C</i>	8	17	14
<i>Comments and conclusions</i>	<p>The low initial germination compared to the higher germination results obtained after 1 month's storage (particularly in moist sand) indicates some sort of dormancy. Perhaps the seeds should be stored in moist sand for 1 month before desiccation and subsequent storage.</p> <p>Best results were obtained for seeds stored at 10°C.</p> <p>The desiccation trial must be repeated to establish the immediate response to desiccation since the initial germination % of the seeds desiccated in Australia was very low (probably due to desiccation during transport).</p> <p>Furthermore, 15°C should be included in the next storage trial; the additional dormancy problem also needs to be investigated.</p>		

Illicium verum - 2000 collection

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Replicating partner	Brian Gunn and Chris Doran Australia Tree Seed Centre (ATSC) CSIRO, Forestry and Forest Products P.O.Box E4008, Kingston, Canberra Australia						
Collection date	November 2000						
Seed source	Tan Doan Commune, Van Quan District, Lang Son Province						
Initial trials (Vietnam)							
Seed weight	0.09 g						
Mc after processing (%)	39.1 ± 1.04						
Initial germination (%)	38.5 ± 2.8						
Storage trial (Vietnam)							
Mc before storage (%)	39.0	36.0	30.9	23.7	16.3	7.2	6.7
Storage at ambient temperature							
Mc after 1 month of storage (%)	35.1	32.2	30.8	25.5	18.0	9.1	5.6
Germination after 1 month of storage (%)	0	4.5 ± 1.3	5.8 ± 4.3	19.0 ± 2.5	37.3 ± 5.1	0	0
Mc after 3 months of storage (%)	39.8	32.2	31.4	27.1	16.2	8.9	7.1
Germination after 3 months of storage (%)	0	0	0.8 ± 1.5	3.0 ± 0.8	0	0	0
Mc after 6 months of storage (%)	48.0	44.5	42.0	27.7	27.3	7.3	8.9
Germination after 6 months of storage (%)	0	0	0	0	0	0	0
Mc after 9 months of storage (%)	56.2	39.9	42.6	31.3	26.5	9.4	7.3
Germination after 9 months of storage (%)	0	0	0	0	0	0	0
Mc after 12 months of storage (%)	48.3	42.0	43.5	31.4	28.6	8.1	10.1
Germination after 12 months of storage (%)	0	0	0	0	0	0	0
Storage at 15°C							
Mc after 1 month of storage (%)	38.8	33.2	29.4	23.9	15.4	11.2	4.0
Germination after 1 month of storage (%)	35.0 ± 2.8	46.5 ± 7.4	56.3 ± 2.9	32.2 ± 2.7	4.3 ± 2.2	0	0
Mc after 3 months of storage (%)	38.0	36.5	33.0	27.2	19.0	10.9	4.7
Germination after 3 months of storage (%)	32.5 ± 1.5	40.8 ± 7.5	67.3 ± 7.2	55.3 ± 9.3	0	0	0
Mc after 6 months of storage (%)	45.4	37.9	37.4	31.4	22.8	12.2	5.0
Germination after 6 months of storage (%)	2.0 ± 0.8	13.5 ± 1.5	29.8 ± 1.7	15.3 ± 2.6	0	0	0
Mc after 9 months of storage (%)	48.6	38.8	38.1	30.9	24.9	12.7	7.0
Germination after 9 months of storage (%)	0	0	0	0	0	0	0
Mc after 12 months of storage (%)	48.3	42.4	38.3	32.1	25.9	13.5	6.0
Germination after 12 months of storage (%)	0	0	0	0	0	0	0
Storage at 5°C							
Mc after 1 month of storage (%)	37.9	33.1	28.6	23.3	15.4	8.8	3.0
Germination after 1 month of storage (%)	38.5 ± 4.1	56.5 ± 6.5	50.5 ± 5.1	45.3 ± 5.9	12.5 ± 6.7	0	0
Mc after 3 months of storage (%)	39.4	34.6	28.5	22.8	16.3	9.3	4.9
Germination after 3 months of storage (%)	41.7 ± 12.0	58.5 ± 7.1	41.0 ± 10.2	53.5 ± 2.7	24.8 ± 2.1	0	0
Mc after 6 months of storage (%)	37.2	33.4	-	22.1	13.2	8.6	6.4
Germination after 6 months of storage (%)	37.5 ± 1.7	51.3 ± 3.3	43.5 ± 10.1 10.1	22.8 ± 5.6	0	0	0
Mc after 9 months of storage (%)	40.0	35.7	32.6	25.1	18.5	9.4	8.5
Germination after 9 months of storage (%)	41.5 ± 7.0	40.3 ± 4.0	35.5 ± 9.8	20.0 ± 4.7	0	0	0
Mc after 12 months of storage (%)	40.3	34.1	30.5	25.7	15.0	10.2	8.1
Germination after 12 months of storage (%)	38.0 ± 4.8	42.5 ± 8.7	26.8 ± 3.6	17.0 ± 5.6	0	0	0

Comments and conclusions

The seed of *Illicium verum* is sensitive to desiccation but tolerates temperatures down to at least 5°C. Best storage was achieved at mc 30-35% and at 5°C. Under these conditions the seed will retain high viability for at least 12 months. When stored at ambient temperature the seed deteriorates quickly.