

Warburgia salutaris

Collecting partner	NTSP Tanzania							
Replicating partner	Plant Cell Biology Research Unit, School of Life and Environmental Sciences, George Campbell Building, University of Natal, Durban, 4041, South Africa (Email: erdey@biology.und.ac.za)							
Collection date	22 February 2001							
Seed source	Shume Forest, Tanga Region, Tanzania							
Initial trials (South Africa)								
Fruit weight	10,76±2,84 g							
Initial mc (%)	52,90±1,28							
	Embryo	Storage tissue (cotyledons)						
Mc (%)	80,65±3,76	51,15±0,13						
Initial Germination (%)	100							
Desiccation trial (South Africa)								
Mc after desiccation (%)	Axis	Cotyledons	Axis	Cotyledons	Axis	Cotyledons		
	73,36	46,38	64,73	47,40	57,00	45,28		
Germination (%)	100		100		100			
Storage trial (South Africa)								
Storage at 15 °C								
	Axis	Cotyl.	Axis	Cotyl.	Axis	Cotyl.	Axis	Cotyl.
Mc after 2 weeks (%)	75,53	39,47	73,47	33,35	39,64	14,78	32,90	12,93
Germination after 2 weeks (%)	15		10		5		0	
Mc after 4 weeks (%)	31,36	39,65		11,96*		8,12*		10,17*
Germination after 4 weeks (%)	15		0		0		0	
Mc after 6 weeks (%)	28,85	27,45		12,36*		12,22*		12,09*
Germination after 6 weeks (%)	0		0		0		0	
Storage at 5 °C								
Mc after 2 weeks (%)	75,71	47,86	75,17	28,17	30,37	12,13	29,30	15,39
Germination after 2 weeks (%)	40		0		0		0	
Mc after 4 weeks (%)		40,22		12,93*		10,69*		13,39*
Germination after 4 weeks (%)	5		15		0		0	
Mc after 6 weeks (%)	41,27	24,03		10,16*		9,66*		11,24*
Germination after 6 weeks (%)	0		0		0		0	
Comments and conclusions								

Seeds were harvested at a high moisture content (80.65% axis moisture content), and all the seeds germinated within 14 days. Moisture loss during silica gel drying was rapid, as the seeds achieved axis water content of 57% within hours. These seeds were not only able to survive such rapid moisture loss, but germinated faster (within 9 days), than the undried, control seeds, which took 14 days to germinate. Stimulation of germination in seeds due to short-term, rapid desiccation has been reported for numerous recalcitrant species, including *Ekebergia capensis* (Pammenter *et al*, 1998). Survival in storage appears to be short-term. In all cases, there was a marked decline in viability after only 2 weeks storage. This was most apparent in seeds that had been dried to TMCs of 12, 9 and 6%. The seeds appeared soft and brown inside, unlike their turgid, white appearance when fresh. However, the rapidly dried seeds can be cryopreserved successfully, as members of our research team have reported (Kioko *et al.*, 2000)

References:

- Kioko, J., Berjak, P., Pritchard, H. and Daws, M. (2000). Seeds of the African pepper bark (*Warburgia salutaris*) can be cryopreserved after rapid dehydration in silica gel. In Cryopreservation of Tropical Plant Germplasm. F. Engelmann and H. Takagi (eds.), pp 371 – 377. IPGRI, Rome.
- Pammenter, N. W., Greggains, V., Kioko, J. I., Wesley-Smith, J., Berjak, P. and Finch-Savage, W. E. (1998). Effects of differential drying rates on viability retention of recalcitrant seeds of *Ekebergia capensis*. *Seed Science Research*. 8.

* These results represent whole seed moisture content