



## Assessment of accelerated ageing in pulses

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**Abstract :** The study was carried out to identify the pattern of seed deterioration in pulses. Based on the seed quality parameters the duration of ageing required to reach a germination percentage around 75 per cent was identified as 5 days for blackgram and 3 days for cowpea and redgram.

**Key Words :** Ageing, Germination percentage, Deterioration, Seed quality

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### INTRODUCTION

In southern part of India, high RH and temperature prevails during *Rabi* season which accelerates the ageing process particularly when seeds stored in moisture pervious container like cloth bags leading to concern for vigour and viability maintenance. During storage the high RH in combination with temperature induces ageing, ultimately effecting vigour viability and productivity. Ageing is a natural irreversible phenomenon resulting in seed deterioration, which leads to loss of vigour and viability. Seeds undergo ageing immediately after physiological maturity. Various factors like seed moisture content (Roberts, 1972; Priestly, 1986 and Ahuja and Aneja, 2004 in soybean; Reusche, 1987 in peanut; Zhang *et al.*, 1993 in barley and rice; Rajasekaran, 2001 in niger), temperature and relative humidity (Khattra *et al.*, 1988 in pigeonpea; Pallavi *et al.*, 2003 in sunflower; Vanniarajan *et al.*, 2004 in black gram), oxygen pressure (Roberts and Abdalla, 1968 in micro flora and insects; Lande *et al.*, 1986 in peanut; Dewivedi, 1990 in gram) influenced ageing in seeds.

Accelerated ageing is an excellent predictor of seed storability. Seed ageing is known to cause appreciable changes in viability, producing large number of changes in qualitative and quantitative characters and can be used on large scale with simple equipment for inducing variability (Purkar, 1980;

Purkar *et al.*, 1980 in peas). Ageing can also be due to alter cell membrane permeability as a consequence of lipid per oxidation leading to poly unsaturated fatty acids present in the membrane or reserve lipids, nucleic acids and proteins (Simon, 1974; Saha *et al.*, 1990; Beckman and Ames, 1997) and works of Pammenter *et al.* (1974) and Pallavi *et al.* (2003). The knowledge on the pattern of seed deterioration is important to use its potential to judge seed vigour. With this background, studies were undertaken by employing the accelerated ageing technique to identify the pattern of seed deterioration in pulses

### MATERIALS AND METHODS

Fresh seeds of (250 g each) blackgram cv. VBN 3 retained by 10/64" round perforated metal sieve, cowpea cv. CO6 retained by 12/64" round perforated metal sieve and redgram cv. APK 1 retained by 12/64" round perforated metal sieve were packed in perforated blotter paper cover and subjected to accelerated ageing in an ageing chamber maintained at  $95 \pm 2$  per cent relative humidity and a constant temperature of  $40 \pm 1^\circ\text{C}$  (Delouche and Baskin, 1973) for a period of ten days. The seeds were shuffled daily, sampled and allowed for moisture stabilization in a desiccator containing fused calcium chloride and evaluated for the following seed quality parameters along with control. The experiment was conducted at room temperature ( $26 \pm 1^\circ\text{C}$ ) in laboratory conditions at Agricultural

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