SEED PERFORMANCE OF DIFFERENT CORN GENOTYES DURING STORAGE

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FAPESP

THE PROBLEM: variation in seedlot storability of different corn hybrids

THE OBJECTIVE: evaluate the effect of storage conditions on seed physiological potential of three corn genotypes, trying to identify possible causes of physiological changes and differences in germination and vigor

MATERIAL AND METHODS

Seeds: three experimental corn hybrids, each represented by three lots

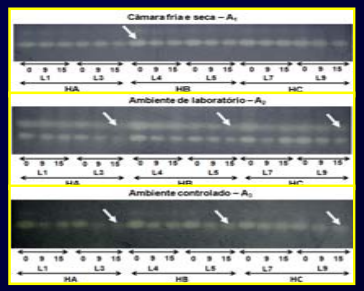
Storage environments: cold and dry chamber (10ºC + 30% R.H.), laboratory normal conditions and controlled environment (20ºC + 70% R.H.)

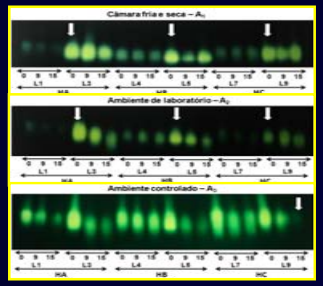
Evaluations performed in quarterly intervals during fifteen months storage

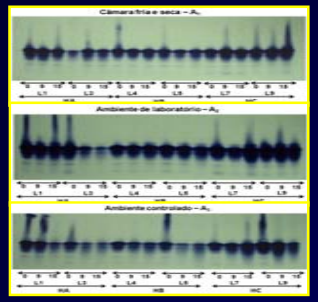
- *Germination, accelerated aging, field seedling emergence*
- *Enzymatic activity: superoxide dismutase (SOD), catalase (CAT), alcohol desidrogenase (ADH) and α-amylase (α-A)*

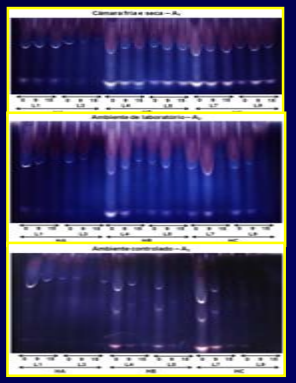
MAIN RESULTS

- Accelerated aging and seedling emergence tests were more sensitive to detect the better storability of hybrid B
- Hybrid C showed the worst performance during storage and Hybrid B, the best









- Activity of SOD, CAT, ADH e α-AM (sequence of figures above, from left to right) decreased during storage
- Hybrid C seeds (more deteriorated): reduction or absence of CAT activity; this probably explain why aged seeds show higher peroxide accumulation
- Hybrid C: higher activity of ADH at 15-month storage; enzymes involved in respiratory activities may have increased activity in seed lots of low physiological potential

CONCLUSION

- Storability of different corn genotypes is consistently evaluated by associating seed germination and vigor tests results with assessments of isoenzymes activity
- Storage under sub-optimal environmental conditions is adequate to promote differences in the intensity of deterioration of corn seed lots