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# Patula pine (*Pinus patula*) cones opening under different treatments for rapid seed extraction in Londiani, Kenya

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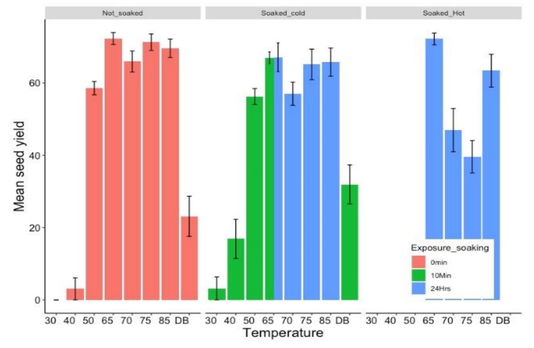
## Scope and main objective

- *Pinus patula* is one of the key commercial tree species planted for industrial production of sawn wood and pulp wood in Kenya. The tree species constitutes 27% of plantation forests.
- Efficient extraction of seeds reduces seed losses and ensures availability of quality seeds for sustainable forest management (SDG 15).
- The study sought to determine the effect of cone pretreatment by soaking and temperature variations on *Pinus patula* cone opening for quick seed extraction. This will provide data to support new approaches in forest education, research and information.
- The main objective was to assess the effect of soaking and temperature treatments on cone opening and seed release.

## Innovative approach/results

- This was a factorial experimental design with temperature and soaking conditions as factors and exposure periods as levels. Twenty replicates were used for each treatment.
- Cones were measured for length (cm), labelled and soaked in hot (100°C) and room temperature (25°C) water for two durations:10 minutes and 24 hours to simulate the varying humidity effects. The cones were placed in labeled glass Petri dishes with sufficient space to prevent contamination of seeds from one cone to another.
- Cones were subjected to artificial heating for seed extraction at eight temperature conditions: 30°C, 40°C, 50°C, 65°C, 70°C, 75°C, 85°C and DB (drying bed conditions to simulate the current practice for seed extraction; 44.8±6.00°C) at three exposure times (4hours, 24hours and 48hours) together with the control (no soaking).
- Measurements of the open part of the cone and seed counts were recorded.
- Similarly to other studies on pines, the lower (close to the branch) part had minimal cone opening.




## Conclusions and recommendations

- Soaking (50.2±1.69%) or not soaking (48.5±2.36%) of cones does not influence their opening.
- This study recommends artificial heating of cones at 65°C from 4 to 24 hours for the rapid seed extraction.