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**Germination of *Lawsonia inermis L.* under different abiotic constraints Etude de la germination de *Lawsonia inermis L.* sous différentes contraintes abiotiques**

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**H**enna (*Lawsonia inermis L.*) is one of the best known plants for its cosmetic, dyeing, ornamental and medicinal properties. It is grown in tropical and subtropical regions, particularly in countries such as Algeria, Egypt, India, Iran, Mali, Morocco, and Senegal. In main exporting regions of the Middle East, Asia and West Africa, the preferred method used for industrial plantations is seed sowing. However, several constraints have been reported as impediments to henna germination, thus limiting a large scale multiplication of the species. Those include the presence of a hard and resistant shell-seeds, low germination percentages that hardly reaching 20% and limited shelf life (<<90 days). In this study, seed multiplication improvement tests have therefore been carried out both *in vitro* and *in vivo*. In the greenhouse, the effect of light has been tested both by light intensity (0-120  $\mu\text{E}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ ) and by the duration of illumination (variable from 0h, 12h, 14h, 16h then continuously 24/24) as well as of

pre- treatments (immersion in distilled water and mechanical scarification). Seed burial tests - from 0 to 30 mm deep with 5 mm increments - were also conducted and the conservation of germinability was studied. *In vitro*, introduction of local ecotypes was carried out. The results show the necessity of light for the germination of *Lawsonia inermis*'s seeds, which reacts positively to an elongation of the photoperiod from 0% in continuous darkness to 89% for 12h of light and 94% for 16h of light, with a decrease in average germination time of around 36 hours. From 5 mm deep, burial in the substrate causes a drastic drop in germination percentage. The most interesting result of this study was the possibility of preserving henna seeds at an ambient temperature of  $25 \pm 2$  ° C in darkness conditions, for almost 9 months in simple plastic boxes. The seeds used retain a germination capacity exceeding 93%. *In vitro* culture test, seeds showed more than 90% of germination and a regular growth of seedlings was obtained.

### Biography

Johnson Benziwa Nathalie has completed her PhD at University of Lome, Togo. She has attended many conferences and she has published more than 10 contributions in International reputed journals and books.

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