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An assessment for the inhibitory effect of phenolic compounds intact with seed coat on seed germination of *Pterocarpus santalinus* L.

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Conservation and multiplication of *Pterocarpus santalinus* L. is timely and important due to its endangered nature and high medicinal value. *P. santalinus* L. contains naturally occurring phenolic compounds, which may inhibit seed germination as in some other legumes. Therefore, experiments were conducted to study the effect of different seed treatments to remove the above chemicals intact with seed coat to improve germination and to prove the inhibitory effect of above chemicals on seed germination of selected crops.

Different treatments (i.e. soaking for 12 hours and 24 hours, alternative soaking for 12 hours and subsequent drying for another 12 hours up to 14 days and exposure to running tap water for 14 days) were applied to facilitate the germination of *P. santalinus* seeds. Effect of seed coat extracts of *P. santalinus* on seed germination of mustard, green gram and chick pea was also studied. In this regard, seeds soaked overnight were treated with different concentrations (i.e. 0%, 25%, 50%, 75% and 100%) of red sandalwood seed coat extracts. Completely Randomized Design with 20 replicates was applied; germination (%) and growth performances of seedlings were recorded and analyzed using SAS computer software.

Results revealed that pods subjected to alternate soaking and drying is the best seed treatment with 41% germination for red sandalwood seeds, followed by pods exposed to running tap water with 39% germination. In second experiment 100% concentration of seed coat extraction inhibits seed germination almost completely (only 2.5%) while seeds treated with water (control) resulted in 90% germination for mustard seeds. For chick pea seeds, 75% and 100% seed coat extractions totally inhibited seed germination, while seeds 60% geminated in the control. Green gram seeds germinated before applying treatments, however further seedling growth was inhibited after treating with 50%, 75% and 100% seed coat extractions. It can be concluded that polyphenolic compounds intact with seed coats of *P. santalinus* has an inhibitory effect on seed germination of red sandalwood which was proved by the inhibition of seed germination of the other crop species. Seed germination of *P. santalinus* can be improved by removing these chemicals intact with seed coat.

Keywords: inhibitory, phenolic, Pterocarpus santalinus L.