

Effects of Light and Leaching on Germination of Saffron Thistle (*Carthamus lanatus* L.)

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Abstract

Breaking of dormancy of saffron thistle 'seed' can be achieved by leaching during imbibition in the presence of red light (600–680 nm). The results suggest a transient light sensitivity during the first 24 h of imbibition which, in non-leached seed, may be prevented independently by an inhibitor present in the embryo. Leaching and imbibing seed in the light appears to entrain a series of responses including changes in the properties of the seed hull and leaching and/or metabolism of endogenous abscisic acid present in the embryo. Once these changes are completed, usually within the first 24 h, the embryo initiates germination. This regulation of germination involving both light and leaching, together with the species potential for long-term survival in a dormant stage, has obvious adaptive significance and helps to explain why saffron thistle is such a persistent weed in cereal growing areas.