

Breeding and genetic improvement of industrial hemp (*Cannabis sativa L.*) in Morocco

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Abstract. Hemp (*Cannabis sativa L.*) is an increasingly attractive versatile crop for the sustainable production of fiber, seeds, and cannabinoids. This crop is of increasing interest for ecological and economic reasons. Additionally, hemp can be easily integrated into crop rotations, helping to improve soil structure and biology and interrupt the breeding cycles of weeds and pests. Additionally, all components of the plant are recycled and transformed into sustainable end products that can be composted and/or recycled. Hemp stems are widely used in the automotive, textile and paper industries as well as in the construction and insulation. The seeds are also used in human and animal nutrition, oil extraction and cosmetics. The remaining inflorescences are used to produce cannabinoids used for medicinal purposes. The introduction and improvement of this species in our country is part of a doctoral research program between the Hassan II Agronomic and Veterinary Institute, the Tadla Regional Centre for Agronomic Research and Hempseed Morocco. The main aim of this research program is to study the behavior of this species in a Moroccan context and to contribute to the creation of a first Moroccan variety of industrial hemp. The first trial took place in June 2022 in the Tadla region with a very heterogeneous population originating from central Europe. The average straw yield for all the populations was 26.43 g/plant, of which 23% were fibers, with an average length of 7.94 mm and grain yield was 5.4 g/plant. Now that laws authorizing hemp production exist in most countries of the world, it's time to embrace this sustainable and versatile crop, which can be used to treat, feed, clothe and build while respecting our planet.

Keywords: Hemp, *Cannabis sativa L.*, fiber, seeds, sustainability, Tadla and Morocco.