

Chapter 10

Cannabis sativa and Its Ability to Combat Climate Change: Unravelling Sustainable Benefits of Cannabis and Its Derivatives

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ABSTRACT

Cannabis sativa plant is a multifunctional crop having multiple uses, including for food, fibre, fuel, and construction materials. This makes it a valuable resource for farmers, as it provides multiple income streams and reduces the need for mono-cropping. In addition, hemp has the potential to play a significant role in promoting carbon sequestration and sustainable land use practices. By using hemp for carbon sequestration, for harvesting bioenergy and making of bioplastics, we can help to mitigate the effects of climate change, improve soil health, and promote sustainable agriculture practices. With continued research and investment, this chapter assess different possibilities that could be explored to harvest environmental benefits of *Cannabis sativa*.

DOI: 10.4018/978-1-6684-5718-4.ch010

INTRODUCTION

Cannabis sativa L. (*C. sativa*), popularly called Indian hemp, is an herbaceous annual plant that has been growing since ancient times in Central Asia (India and China) (Russo et al., 2008). *Cannabis sativa* (often known as “Cannabis”) is an angiosperm in the Cannabaceae family. *Cannabis sativa* has been farmed for more than 5000 years for fibres and seed oil (Lash, 2010, Leizer et al., 2000), as well as medical (Zuardi, 2006 and Clarke and Merlin, 2013;) and recreational usage (Small, 2017). (Burstein, 1997 and Cota et. al., 2003). The plant is known for its medicinal and recreational uses and is often referred to as marijuana or hemp. *Cannabis sativa* contains a variety of chemical compounds, including cannabidiol (CBD) and tetrahydrocannabinol (THC), which are responsible for its medicinal and psychoactive effects. The plant is also used for its fibres, which are used to make textiles, paper, and other products. *Cannabis sativa* plant has a wide range of uses including medicinal, recreational, industrial, and horticultural uses. *Cannabis sativa* is a species of the *Cannabis* genus of plants. It is a tall, slender, and fibrous plant that is typically grown for its seeds, leaves, and flowers, which contain compounds known as cannabinoids. *Cannabis sativa* is a plant species that has a wide range of uses. The most well-known use of the plant is for the production of marijuana, which is used for its psychoactive effects. However, there are many other uses for the plant as well, including:

MEDICINAL USE

Cannabis sativa has been used for medicinal purposes for centuries. The plant contains compounds called cannabinoids, which have been found to have therapeutic properties. Tetrahydrocannabinol (THC) and cannabidiol are the two principal cannabinoids present in the plant (CBD). The psychoactive qualities of marijuana are caused by the chemical THC, whereas CBD is non-psychoactive and has been shown to have anti-inflammatory, analgesic, and anti-anxiety properties. Medicinally, it can be used to help with conditions such as pain, anxiety, and insomnia. Recreationally, it can be consumed in various forms, such as smoking, vaporizing, and edibles.

Industrial Use

The fibres from the stem of the *cannabis sativa* plant can be used to make paper, textiles, and rope. The plant's seeds are also rich in oil and can be used for food and cosmetics. Industrially, it can be used to make a variety of products such as textiles, paper, and bioplastics. And horticulturally, it can be used as a cash crop or as a source of food.

Recreational Use

As mentioned before, the most well-known use of *Cannabis sativa* is for the production of marijuana, which is used for its psychoactive effects. These effects are caused by THC, a compound found in the plant. The plant is consumed in different forms such as dried flowers, resin, oil, or edibles.

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