

Next Generation Cannabis CBD Pharma with role of Biotechnology & Hydroponic in India

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Abstract

In India's ancient Vedas texts, religious scholars described cannabis as "one of the five most sacred plants." Cannabis has been a part of India's religious rituals and festivities for millennia. Ancient Indian Ayurvedic practices used cannabis as an active ingredient in medicines, ranging from digestion problems to blood pressure. Nearly 191 formulations and more than 15 dosage forms have included cannabis as a key ingredient in the Ayurvedic texts. The plant grows wild throughout India's Himalayan foothills and the adjoining plains, from Kashmir in the west to Assam in the east. This accessibility and abundance of cannabis presents India with the unique opportunity to harness the plant for economic growth. Despite the country's long history of cannabis use, the plant remains illegal except for in government-authorized premises that produce and sell bhang (which can be either ground cannabis balls or a drink made by mixing cannabis in milk), or for research and medicinal purposes.

In government authorized research premises, India has begun its medical research of cannabis. In order for cannabis to be used for medicinal purposes, it must have both CBD and THC components in the required proportion. Research is needed on Indian cannabis to study the chemistry and breeding of the plant to ensure it is appropriate for use in medicine. Globally about one in five, or 1.5 billion people suffer from chronic pain. India is predicted to be ranked highest in terms of chronic pain cases by 2025, presenting a huge market for those companies who intend to create treatments for chronic pain with cannabis.

Cannabis indica L. is an important medicinal plant that serves as a source of Cannabinoids, a unique class of terpenophenolic compounds which accumulates mainly in the glandular trichomes of the plant. Currently, about 110 phytocannabinoids have been isolated from *C. sativa*, the major biologically active compound being Δ^9 -tetrahydrocannabinol, commonly referred to as THC. Besides its psychoactivity, THC possesses analgesic, anti-inflammatory, appetite stimulant, and antiemetic properties making it a very promising therapeutic agent especially for cancer and AIDS patients. Cannabidiol, Cannabichromene, Cannabigerol, Cannabinol, and Tetrahydrocannabivarin are other major bioactive phytocannabinoids present in the cannabis plant. Through a contract with the National Institute on Drug Abuse (NIDA), The University of Mississippi has been carrying out a variety of research activities dealing with cannabis, including growing, harvesting, and processing the cannabis biomass for research purposes making it available for licensed researchers across the country through NIDA.

Zestha Biotech Pvt. Ltd. is located in Noida, Uttar Pradesh, India. Company's main focus is to develop Cannabis Hydroponic Technology and wide variety of Plant development by our BioTech Lab. We are offering Cannabis hydroponic crop production & CBD Oil extraction modal in the area of pharma market.

Zestha Biotech Pvt Ltd. is the license holder for cultivation of medicinal cannabis and extraction of CBD Oil for the first time in India in the state of Uttarakhand. Being holder of first medicinal cannabis license we have

tremendous scope for first mover advantage looking into the growth/future of CBD based products for medicinal purpose in India.

Cannabis crop extract Products. The company intends to do that by designing and executing the project by adopting the latest technology like NFT/DFT technology (soilless) for cultivation and patented Hydro dynamic technology for extraction of cannabis by nano emulsion extract for producing 100% bioactive water soluble distillate/isolate.

Zestha Biotech Pvt. Ltd. and Hydrogreen Leaf Pvt. Ltd. a great role as of biotechnology and our efforts to propagate higher CBD with low THC (.3%) based Cannabis indica plant mother culture development for the production of cannabidiol. This includes, screening of high yielding genotypes based on their chemical profile, propagation of these genotypes using biotechnological tools, comparison of micro propagated plants with the mother plants for consistency of chemical and genetic profiles and the utility of micropropagation in the conservation of elite clones for future use in India and Asia.

Genetic engineering could provide more efficient alternatives. Hydrogreen Leaf researching as a cannabis biotechnology companies are aspiring to replace cannabis plants with microorganisms that have been genetically enhanced to spit out THC, the non-psychoactive compound cannabidiol (CBD) and myriad other cannabinoids of pharmaceutical interest. Others are aiming to modify chemical synthesis in the cannabis plant by genetically altering its cells to make the desired molecules from shoot to tip, thereby boosting yield.

While the current focus for hemp and CBD, as well as the associated part of the hydroponics market, is currently on the Asia, there is also important potential for growth further afield. Asian countries are showing an increasing interest in CBD products, with customers keen to buy in, and some governments re-examining the legislation around these crops. For fast-moving companies, there's a chance to get in on the ground floor of the next wave of hemp hydroponics. All this attention on hemp and CBD brings challenges with it. This is a tightly regulated sector with demanding customers. High-quality crops are essential for success, and managing both quality and consistency can prove incredibly challenging. To do this, many growers are turning to hydroponics.

Legalizing cannabis makes its production formal and open now in India. It will stop the illegal trade and supply of the herb and kill the black market. It is a known fact that when production of a substance increases so do allied businesses. More business needs manpower and improves job opportunities. What more? With increased production and sales and new tax structures that have been enforced in the country, legalizing Cannabis only means more revenue for the government.

Watching the growth of the Cannabis industry closely, we believe that it is on the verge of a world-wide growth. India is actually sitting on a pot of gold, because as a country we have immense knowledge about its use and favourable climatic conditions for cannabis production in India. Legalizing Cannabis would mean that we can be a key player in this growth and carve a place for ourselves as a leader of Cannabis based pharma and wellness products in India.