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The alternate hemp industry: the viability of hemp agriculture to develop energy efficient materials whilst addressing agro-rural socio-economic opportunities in the Eastern Cape

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i. Abstract

The recent fascination with industrial hemp *(Cannabis Sativa L.)* is due to the effects climate change and the need to redefine industries to manufacture sustainable and environmentally friendly products. The research investigates the enquiry into hemp as an industrial crop for the processing into energy efficient products. It further examines the notion of hemp's applicable anatomical structures being processed into four different products, hemp hurd and fibre as a building material, hemp fibres for bioplastic, hemp biomass and seeds for biofuel and hemp fibres for textiles.

A provincial analysis of the Eastern Cape revealed the socio-economic opportunities, agricultural potential and biophysical climatic conditions pertaining to the successful cultivation of hemp. The findings from the literature review detail the appropriateness of hemp in the South Africna agricultural and industrial sector. The results, energy efficient applications section critically examines the versatility and performance of hempcrete, biocomposites, biofuel and textiles in a sustainability paradigm. The findings from the semi-structured, open-ended interviews through online meeting software platforms advances the understanding of the viability of industrial hemp agriculture.

The research finds that the hemp industry could play an important role to develop energy efficient products whilst addressing agro-rural socio-economic opportunities in the Eastern Cape.