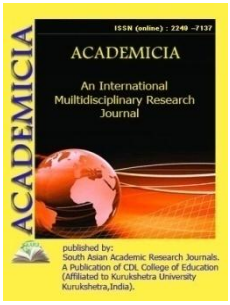
ACADEMICIA

ISSN: 2249-7137 Vol. 11, Issue 10, October 2021 Impact Factor: SJIF 2021 = 7.492

ACADEMICIA
An International Multidisciplinary Research Journal
(Double Blind Refereed & Peer Reviewed Journal)



DOI: 10.5958/2249-7137.2021.02239.4

CAMELINA AS A VIABLE ORGANIC CHEMICAL CROP

Dr Prafull Kumar*

*Sanskriti University, Mathura,
Uttar Pradesh, INDIA
Email id: prafull@sanskriti.edu.in

ABSTRACT

Camelina is an underused Brassicaceae oilseed plant with significant agronomic potential in temperate areas for biofuel and vegetable oil production. Camelina is resistant to alternaria black spot and other diseases and pests, unlike other Brassicaceae. The camelina genome was sequenced and found to have an undifferentiated allohexaploid genome with a high number of genes and a low proportion of repetitive DNA. Because camelina and the genetic model plant Arabidopsis have a tight connection, this review will look at the possibility of converting fundamental Arabidopsis findings into a camelina oilseed crop for food and non-food uses. Recently, camelina has effectively expressed Arabidopsis genes for drought tolerance, enhanced photosynthesis, and overall productivity. Furthermore, gene constructs affecting lipid metabolism pathways have been engineered into camelina for the production of long-chain polyunsaturated fatty acids, hydroxy fatty acids, or high-oleic oils in specific camelina strains, which is of great interest in human food, industrial, or biofuel applications. These findings support camelina's promise as a biotechnology platform in biorefinery applications, indicating that further breeding and genetic research is needed to combine agronomic potential, distinctive oil quality characteristics, and biosafety in an agricultural production system.

KEYWORDS: *Biofuel, Brassicaceae, Camelina, Genetic, Linolenic Acid.*

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