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Biodiesel

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Energy crises along with environmental concerns are driving researchers to develop viable alternative fuels from renewable resources. The use of Brassica juncea oil as an alternative fuel suffers from problems such as high viscosity, low volatility and poor cold temperature properties. The seed of Euonymus alatus produces low viscosity oil having unusual triacylglycerol (TAGs) called acetyl triacylglycerol (acTAGs) where the sn-3 position is esterified with acetate instead of a long chain fatty acid. The enzyme Euonymus alatus diacylglycerol acetyltransferase (EaDacT) present in these plants is an acetyltransferase that catalyzes the transfer of an acetyl group from acetyl-CoA to diacylglycerol (DAG) to produce acTAG. In order to reduce the viscosity of Brassica juncea oil by synthesizing acTAG, we have developed an efficient and simple agrobacterium mediated floral dip transformation method to generate transgenic Brassica juncea plants. A binary vector containing the EaDacT gene under the transcriptional control of a glycinin promoter and with a basta selection marker was transformed into Agrobacterium tumefaciens strain GV-3101 through electroporation. Basta (m acet12 (f a lo)14fcetr12 (f a)Th4)4idg0 Tc 0.0g14 (s)n6P.9 (