## BRIEF WRITE UP ON TECHNOLOGY

## DIBER, DRDO Technology for Deriving High Quality Bio-diesel Meeting Specified Indian Standards (IS:15607) from Jatropha (Superior Germplasm)

### Bio-diesel Scenarion in India: Gaps and Challenges

*Jatropha curcas* is a mandated crop for bio diesel production in India (National Biofuel Policy 2008, National Policy on Biofuels 2018). However, early entrepreneurs have struck with failure due to following reasons-

- Lack of quality feedstock and Agrotechnology practices
- Lack of oil extraction and transesterification technologies producing bio-diesel meeting IS15607 standards.
- Cumbersome post processing procedures.
- Short shelf life.

### Superior DIBER Technologies Overcoming Existing Shortcomings

Rigorous research efforts by this Institute have led to development of an overall model for deriving bio diesel from Jatropha with attractive gains. A list of sub-technologies is as under-

| | **Technology/ Product** | **Accreditation, etc.** | **Figure** |
|---|---|---|---|
| a) | High yielding varieties of *Jatropha curcas* | National Bio-diesel Mission | 1 |
| b) | Tissue culture mediated mass propagation protocol | National Bio-diesel Mission | 2 |
| c) | Area specific Agrotechnology (Semi-arid, foothills, North-West Himalayas) | National Bio-diesel Mission | 3-4 |
| d) | Indigenous oil extraction and transesterification technologies for production of bio-diesel meeting IS:15607 standard. | Indian Patent filed (Sl. No 201811026681) | 5 |
| e) | Range of value added products- soap, glycerine, fuel briquettes, fertilizer reducing the overall production cost. | | 6 |

DARL-1

DARL-2

**Figure 1**

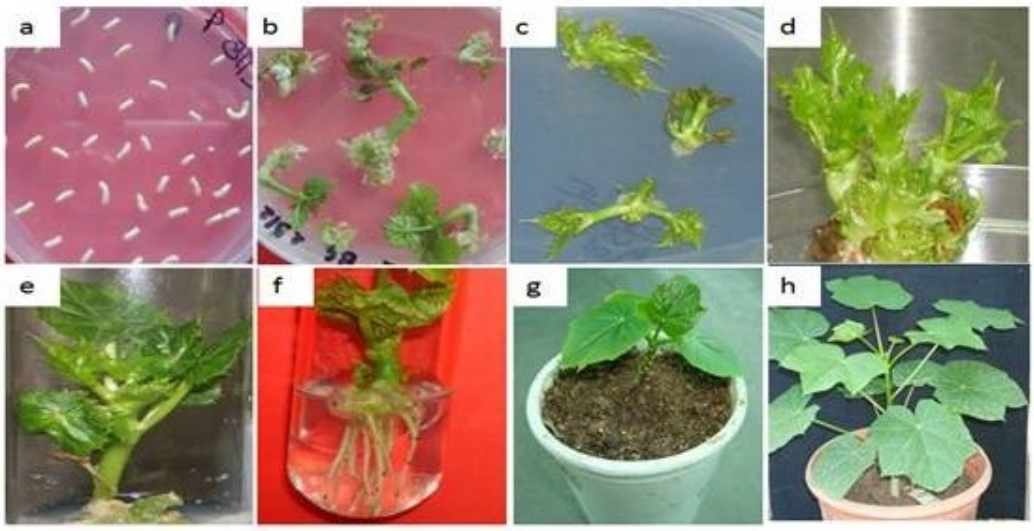



**Figure 2**

# Jatropha Agrotechnology

Before

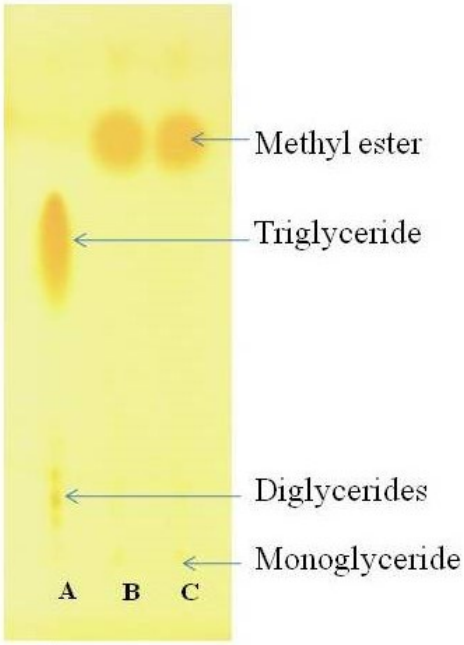
After

Figure 3


Jatropha nursery **A**- stem cutting-raised saplings; **B- S**eed-raised saplings.

**Figure 4**

# Complete conversion of triglyceride (oil) to methyl esters


Where
A Jatropha oil
B,C Biodiesel of different batches

**Figure 5**

Soap


Fertilizer


Manure

Fuel briquettes


Glycerol

**Figure 6**