# The Complete Book on Jatropha (Bio-Diesel) with Ashwagandha, Stevia, Brahmi & Jatamansi Herbs (Cultivation, Processing & Uses)

Author:- NIIR Board of Consultants and Engineers Format: paperback Code: NI176 Pages: 592 Price: Rs.1500US\$ 150 Publisher: NIIR PROJECT CONSULTANCY SERVICES Usually ships within 5 days

Jatropha proves to be a promising Biofuel plantation and could emerge as a major alternative to diesel thus reducing our dependence on oil imports and saving the precious Foreign Exchange besides providing the much needed energy security. Jatropha oil displacing conventional fossil fuel makes the related project fully eligible. The Jatropha plantation primarily focuses cultivated green biodiesel as an alternate source of fuels that can propel engines, generators and transportation as well as power generation in the future and replace existing sources. The main factor that makes the major difference is the cost of the bio fuel that it can be made cheaper than the petro diesel and on a long term basis without affecting the operational economics. Ashwagandha (also called as, Indian Ginseng), Stevia a natural non caloric sweetener, Brahmi (brain tonic) and Jatamansi are the important herbs which have very good medicinal values. Ashwagandha increases the count of white blood cells and prepares the body to produce antigens against various infections and allergies. It is also considered as a tonic for the heart and lungs as its regular intake controls the blood pressure and regulates the heartbeat. It has a strong nourishing and protective effect on the nervous system. Ashwagandha has been used as a sedative, a diuretic, a rejuvenating tonic, an anti inflammatory agent, aphrodisiac and an immune booster. It is especially beneficial in stress related disorders such as arthritis, hypertension, diabetes, general debility, etc. It has also shown impressive results when used as stimulants for the immune system. It is considered as an adaptogen that stimulates the immune system and improves the memory. Stevia also known as the sweet leaf which is an all natural sweetener, derived from a plant called stevia rebaudiana. It has no calories, no carbohydrates, and it has a glycemic index of zero, which makes it the sweetener of choice for many diabetics all over the world. The herbs are carefully nurtured and harvested at only certain times of the year. Stevia comes in many forms; stevia supreme, stevita ultimate stevia, stevita liquid stevia, fruit flavoured stevia and many more. Brahmi is used as a herbal brain tonic, to rejuvenate the body, as a promoter of memory and as a nerve tonic. It improves memory and helps overcome the negative effects of stress. It is unique in its ability to invigorate mental processes whilst reducing the effects of stress and nervous anxiety. Brahmi induces a sense of calm and peace. Brahmi has gain worldwide fame as a memory booster and mind alertness promoter. Jatamansi has the power to promote awareness and calm the mind. It is a very useful herb for palpitation, tension, headaches, restlessness and is used for promoting awareness and strengthening the mind. It aids in balancing the body of all three Ayurvedic doshas. This herbs sedative properties increase awareness, as opposed to valerian that dulls the mind. Aromatic, antispasmodic,

diuretic, emmenagogue, nervine, tonic, carminative, deobstruent, digestive stimulant, reproductive some of the properties of Jatamansi herb.

This book is describes about the medical properties, important uses and applications, cultivation, chemical constituents, harvesting and post harvesting, yield and other properties of herbs like safed mulsi, brahmi, jatamansi, ashwagandha, senna, shatavari and more. This book also deals with biodiesel, biofuel and petro crops : an alternative to conventional fuels, the potential of jatropha curcas in rural development and environment protection, prospects of expanding market for use of jatropha oil, jatropha: potential as insecticide/pesticide etc. The present system of medicine is gradually gaining popularity mainly because of less or no toxic or side effects of herbal drugs. So, these herbs have very good future prospects globally. This book contains cultivation, processing and uses of Jatropha, Ashwagandha (Withania somnifera), Stevia rebaudiana, Brahmi (Bacopa monnieri) and Jatamansi (Nardostachys Jatmansi DC.). This book will prove to be an invaluable resource for researchers, technocrats, agriculturist, agriculture universities etc.

### 1. BIO DIESEL - JATROPHA CURCAS

**Business Opportunities** 

2. BIODIESEL, BIOFUEL AND PETRO CROPS : AN ALTERNATIVE TO CONVENTIONAL FUELS
Introduction
Background
R&D Program and Major Achievements
Development of Biodiesel Crops like Jatropha Curcas
Evaluation of Petro Crops: Euphorbs
Evaluation and Improvement of Guayule (Parthenium Argentatum)

3. LIST OF IMPORTANT GOVERNMENT AND PRIVATE INSTITUTE/SCIENTIST ENGAGED IN RESEARCH AND DEVELOPMENT OF JATROPHA

4. TREE DESCRIPTION
Leaves
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Fruits
Seeds
Roots
5. THE POTENTIAL OF JATROPHA CURCAS IN RURAL DEVELOPMENT AND
ENVIRONMENT PROTECTION
Introduction
Objectives of the Workshop

Objectives of the Workshop Production of Jatropha curcas Jatropha curcas as an Energy Source Other products of Jatropha curcas Costs and Returns Expected Output

6. JATROPHA : THE WONDER OIL BEARING TREE! Introduction Botanical Features

**Ecological Requirement** Interesting History and Future of the Plant Uses of Jatropha curcas Jatropha : As ornamental Plant Jatropha: As a fence Jatropha curcas: As a potential oil crop Jatropha oil: As raw material for industrial use Jatropha: Potential as medicinal plant Jatropha bark: As raw material for dye Jatropha- For enrichment of soil Jatropha: As potential feed stoke Jatropha: Potential as insecticide/pesticide Jatropha: As non conventional energy crop Jatropha: As profitable agro forestry crop Cultivation Soils **Climates requirements** Spacing and seeds rate Propagation Inter-Cultivation Irrigation **Expected Yield** Prospects of expanding market for use of Jatropha oil Jatropha oil as an alternative to diesel Diesel engine test for Jatropha oil Jatropha oil; as alternative to kerosene as fuel

7. BIO DIESEL What is Bio Diesel? This fuel is called Bio-Diesel The Advantages of Bio Diesel The Process The Technology The Cost International Laws and regulation Biodiesel Scenario In India Bio Diesel Experiments Conclusion

8. GUJARAT OLEO CHEM TO EXPAND BIO-DIESEL PRODUCTION CAPACITY Up to promote Jatropha seed oil farming

9. JATROPHA: THE BIO-FUEL PLANT Introduction Uses Leaves, Bark & Roots Seeds & Oil Folk Remedies Bio-Fuel General Cultivation Origin and Distribution Cultivation Description of the plant Description of the species Varieties Seed rate and spacing Field preparation and Planting Inter-cultivations Plant Protection Jatropha Oil Harvesting and yield Post harvest processing Project Profile

#### 10. TRANS-ESTRIFICATION BIODIESEL PROCESS Ingredients Manufacturing Process Process in Detail Quantity of methanol to be used Glycerine

11. CENTRE FOR JATROPHA PROMOTION: GROWING DIESEL FUEL PLANT: CULTIVATION FOR BIO DIESEL PRODUCTION Breaking the cycle of poverty Can diesel be "cultivated―?

12. BIODIESEL IN INDIA Field Trials of Biodiesel Economics of Jatropha Biodiesel Target of biodiesel production Raw Material (Jatropha curcas seed and oil) Biodiesel Work in India Work-Done In India Indian Railways

#### 13. OIL EXTRACTION - OIL EXPELLERS FOR JATROPHA SEEDS

14. BIODIESEL PROJECT 10 KI PER DAY Introduction **Product Description and Uses** How is Biodiesel made? **Biodiesel Benefits** Description **Applications** Standards Transport information Personal protection **Consumer Safety** Alternative Fuels Incentives and Laws Market Survey and Demand Supply Position **Raw Materials and Suppliers** Manufacturing Process Description **Project Implementation Schedule Power Requirement Utilities Specifications** Market and Selling Arrangements

Salient Features and Project Highlights Basis and Presumptions Manpower and Organization

15. PLANT OF 1000 LITERS PER DAY Background Description Brief Process Description Plant of 1000 liters per hour. (24 Kilo Liters per day) Commercial Conditions Oil Expeller Manufacturers

16. EQUIPMENT FOR DECENTRALISED COLD PRESSING OF OIL SEEDS Introduction General advice for a complete oil mill Influences on product quality in decentralised oil mills Pre-treatment of the seed Parameters of the press Examples of a complete oil mill Oil seed expeller Equipment for pre-treatment of the seed Overview manufactures of cold pressing oil expeller Oil expeller manufactures Purification of plant-oil Filter equipment manufactures Standardisation of cold pressed Rape Seed Oil Fuel for Plant Oil Adapted Diesel Engines

17. Stevia

Shelf Life **Botanical Trait and Constituent** History **Application and Benefits** Growing Stevia in Home Garden Process for Extraction and Grades Sweetvia Produced by Stevia Co.inc., USA Liquid Concentrates Grades Internationally Available Safety Regulations FDA, USA Investigation on Stevia Important Players **Global Scenario Economics** Recommendation Artificial Sweeteners Scenario Acesulfame K Aspartame Sucralose **Xylito** 

18. ASHWAGANDHA

Introduction Folklore Uses of Ashwagandha (Withania somnifera) Ashwagandha in Vedas Cultivation Agronomical perspectives Genetics and Crop Improvement Physiological Manipulations Cell and Tissue Culturing Genetic engineering Chemical Constituents of Ashwagandha (W. somnifera) Pharmacognosy Root Leaf Stem Floral Parts Histology of Floral Parts Corolla Androecium Gynoecium Fruit Seed Embryology Seedling anatomy **Concluding Remarks** International Occurrence **Concluding Remarks** 19. BRAHMI **Regional Names Medicinal Properties & Uses Cultivation & Propagation** Soil and Climate Land Preparation Transplanting Manure/Fertilizer Irrigation Weeding Harvesting/Post-harvesting **Chemical Constituents Major Constituents** Other Constituents **Active Constituents Analytical Profile Bacoside A Solution Calibration Curve Test Solution** Procedure Yield Substitute/Adulterants Home Remedy Dose Important Formulation

20. JATAMANSI **Regional Names** Distribution **Medicinal Properties & Uses** Cultivation Soil and Climate Nursery raising and Planting Manure/Fertilizer Irrigation and Weed Control Harvesting/Post-harvesting **Chemical Constituents Major Constituents** Other Constituents Active Constituents **Analytical Profile** Substitute/Adulterants Home Remedy Dose Important Formulation

#### 21. SAFED MUSLI

Regional Names Distribution Medicinal Properties & Uses Cultivation & Propagation Soil and Climate Nursery Raising and Planting Manure/Fertilizer Irrigation Weeding Harvesting/Post-harvesting Chemical Constituents

#### Yield

22. SARPAGANDHA **Regional Names** Distribution **Medicinal Properties & Uses Cultivation & Propagation** Soil and Climate Nursery Raising & Planting Manure/Fertilizer Irrigation Weeding Harvesting/Post-harvesting **Chemical Constituents** Major Constituents **Other Constituents Active Constituents** Yield Home Remedy

Dose

23. SENNA **Regional Names** Distribution **Medicinal Properties & Uses Cultivation & Propagation** Soil and Climate Land Preparation Nursery Raising and Planting Thinning and Weeding Manure/Fertilizer Irrigation Harvesting/Post Harvesting Operation **Chemical Constituents Major Constituents** Other Constituents **Active Constituents** Yield 24. SHATAVARI **Regional Names** Distribution **Medicinal Properties & Uses Cultivation & Propagation** Soil and Climate Land Preparation Nursery Raising and Planting Weeding Irrigation Manure/Fertilizer Harvesting/Post Harvesting **Chemical Constituents Major Constituents** Other Constituents **Active Constituents Analytical Profile** Solvent System **TLC Plates** Derivatization Scanning **Standard Solution** Sample Preparation **Calibration Curve** Estimation of Shatavarin IV in the drug Yield Substitutes/Adulterants Home Remedy

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Fri, 15 Aug 2025 23:52:21 +0000