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Ramar(10) **Pub. No.: US 2011/0016774 A1**(43) **Pub. Date: Jan. 27, 2011**(54) **VELAR BIO HYDROCARBON FUEL**(30) **Foreign Application Priority Data**(76) Inventor: **Ponnupillai Ramar**, Chennai (IN)

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MINNEAPOLIS, MN 55402 (US)(51) **Int. Cl.****C10L 1/182** (2006.01)**C10L 1/19** (2006.01)(52) **U.S. Cl.** **44/322**; 44/411; 44/451(57) **ABSTRACT**(21) Appl. No.: **12/922,147**(22) PCT Filed: **Apr. 24, 2008**(86) PCT No.: **PCT/IN2008/000258**

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This invention relates to a novel hydrocarbon fuel and a method of manufacturing the said hydrocarbon fuel from a novel biomass source. The hydrocarbon fuel has the following ingredients in the proportion herein defined: a. Limonene 2% to 60% b. Benzoyl Peroxide 1% to 5% c. Iso Propyl Alcohol 1% to 5% d. Glycerine 5% to 25% e. Tetra Hydrofuran 10% to 40% f. Tertiary Butyl Alcohol 10% to 20% g. Ethyl Formate 5% to 30% h. Methyl Alcohol 5% to 25% i. Cyclopentane 2% to 10% j. Ethyl Alcohol 22% to 40%.

VELAR BIO HYDROCARBON FUEL**FIELD OF INVENTION**

[0001] This invention in general relates to Energy Saving Technology. Further, this invention relates to manufacture of Novel Fuels. More particularly, this invention relates to production of hydrocarbon fuel from a bio-mass.

STATE OF ART

[0002] Gasoline is used as fuel all over the world for Engines. Consumption of the Fuel is increasing day by day. Its sources are limited and will vanish in the near Future. Further, there is a problem of Environmental Pollution. Due to increase in the number of vehicles, the consumption of fuel has increased resulting in increasing polluting emissions. It is the need of the time to control pollution by promoting alternative fuel for Motor Vehicles.

[0003] As already mentioned, Gasoline is a Limited and Exhaustible Source. In Developing Countries, automobiles are a necessity of every class of society and the unbearable increasing cost of the Fuel hampers this necessity. Hence, development of an alternative fuel with multiple and reproductive source is an urgent need of the hour.

[0004] It is thus important that scientists develop new sources of energy, which may include new ways of producing petroleum from renewable sources. With the extraordinary development of the automobile and aeroplane industry, the world's demand for petrol has increased enormously. Natural resources are limited and moreover there is a monopoly of a few countries—collectively known as Organization of Petroleum Exporting Countries (OPEC) on them. In spite of the great number of oil fields that have been discovered, our supply of petrol is inadequate. The increasing demand for petrol has been largely shouldered by the introduction of cracking methods and actually more petrol is now obtained by cracking, than in the original petroleum distillation process. But there is no satisfaction, as the world's oil supply cannot last indefinitely.

[0005] In a country like India, with practically no Oil Fields so far, we are immediately confronted with the problem of 'Synthetic Petrol'. India must have enough of the motor fuel. Petrol has soon got to be produced somehow and it is left to the chemist to accomplish the task. The situation however, is not as pessimistic as it seems to be. We can certainly count on our vast coal fields for a supply of the synthetic product. Already, the work on production of the fuel oil from this source has progressed enough in countries like UK and Germany. The chief method of preparing 'Synthetic Petrol' is given below:

[0006] Bergius Process. Hydrogenation of coal at higher temperature in the presence of catalysts gives a mixture of liquid hydrocarbons. In this method, finely powdered coal and suitable catalyst is made into a paste with heavy oil produce in the process. The coal paste is then pre-heated and pumped to the converter. Here the paste is heated to 450° C. and hydrogen bubbled through it at 250 atmospheric pressure. The coal, which is really a mixture of high molecular complex of organic compounds deficient in hydrogen and elementary carbon, combines with hydrogen to form higher saturated compounds. These, as a result of cracking and simultaneous hydrogenation, yield mixtures of alkanes. This, is 'Synthetic Petroleum' or 'Crude Oil'.

[0007] The fast approaching peak and then the irreversible decline of petroleum production is not a myth. Until 1998, the International Energy Agency never projected a

peak in the World Oil Production. But in March, for the G8 Energy Ministers' meeting in Moscow, the IEA stated that a peak in World Oil Production is likely to occur between the years 2010 and 2020. This is in general agreement with other recent estimates already cited. Perhaps, this signal for the forthcoming event will now get worldwide serious attention, it fully merits. So far, political circles have generally ignored the matter. Governments have a very short range vision.

[0008] Limitations of Science and Technology.

[0009] The Present Society seems to have come to the comfortable conclusion that no great problems can now overtake us. The thought that "Scientists will think of something" is a popular public placebo by which, to ignore the facts. Will something come to the rescue ?

Piementel and Giampietro (1994) have warned:

[0010] Technology cannot substitute for essential natural resources such as food, forests, land, water, energy and biodiversity We must be realistic as to what technology can and cannot do to help humans feed themselves and to provide other essential resources. Bartlett (1994) has observed the general complacency about the future and writes; There will always be popular and persuasive technological optimists who believe that population increases are good, and, who believe, that the human mind has unlimited capacity to find technological solutions to all problems of crowding, environmental destruction, and resource shortages. These technological optimists are usually not biological or physical scientists. Politicians and business people tend to be eager disciples of the technological optimists.

[0011] What Bartlett is saying, is that, "We, Scientists might NOT be able to think of something".

[0012] To put it bluntly, Science and Technology cannot indefinitely rescue the human race from whatever predicaments into which it gets itself—the overriding one, now being population size, its current exponential growth, and how it can be supported in the future.

[0013] In this situation, if an indigenous fuel is developed which is cheaper, less polluting and which has reproducible sources, then it can save the economy of the WORLD as well as it can give economical relief to all strata of society.

[0014] Steps in this regard have been taken in Countries like Brazil and India also, wherein Gasoline is blended with Ethanol in varying percentage.

[0015] Herbal products have been used as fuel in one or other form since pre-ancient time. Some of the herbs, rich in oil content such as pine oil, eucalyptus oil etc., fermentation product of molasses (i.e. alcohol) are also well known as fuels. Some other herbal products as pinene, dipentene, terpinolene, ordinary turpentine, sulphate turpentine (15% to 25%) and volatile aliphatic hydrocarbons render themselves as self igniting liquid fuels oxidant combination for Rockets, with 95% nitric acid containing 10% to 30% oleum. Later in 1958, it was reported that volatile liquids burnt as waste at Gas Fields, Coal mines and Fossil fuel deposits which contain short chain hydrocarbons including butane and other alkanes mixed with ethanol and methyl tetrahydrofuran may be used as a vehicle fuel.

[0016] Literature survey reveals that dipentene had appeared in as many as 175 US patents, limonene in 592 patents and terpenes appeared in about 1174 patents. But none of these patented inventions have any relevance with the present invention.

[0017] 5 Quotable patents from the above literature survey are as follows:

[0018] 1. Two-cycle engine oil composition (U.S. Pat. No. 4,759,860—Jul. 26, 1988) discloses use of terpene as lubricating oil only and not as fuel.

[0019] 2. Hydrocarbon based fuel from biomass (U.S. Pat. No. 5,186,722—Feb. 16, 1993) discloses a process for converting biomass containing terpene to hydrocarbon fuel and not the terpene that has been directly used as a fuel. It has been also disclosed in this patent that use of 20% limonene at 2000 rpm causes automatic shut-down of the engine with explosive knocking whereas in the present invention limonene is being used up to 80% with safe and satisfactory running of the engine.

[0020] 3. Engine Fuel (U.S. Pat. No. 5,501,713—Mar. 26, 1996) discloses the fuel to be comprised of terpene, alcohol and lubricating oil where limonene did not exceed 50%.

[0021] 4. Engine fuel (U.S. Pat. No. 5,575,822—Nov. 19, 1996) discloses the fuel to contain terpene up to 42% only with 80% to 90% of naphtha.

[0022] 5. Engine fuel (U.S. Pat. No. 5,607,486—Mar. 4, 1997) discloses the engine fuel to contain terpene up to 25% only with 10% to 15% of naphtha and 70% to 80% of methanol.

Use of methanol and naphtha mentioned in the patents at SI. Nos. 3, 4 and 5 couldn't be on a large scale as they are toxic substances. The terpene in the present invention is more than 55% and without toxic ingredients being used.

[0023] In India, no patent or publication in respect of the same or substantially the same invention similar to the one described in this article has been observed.

[0024] This invention relates to the manufacture of a novel kind of hydrocarbon fuel from biomass and a process of producing the said hydrocarbon fuel on a large scale. This invention particularly, though not exclusively, will relate to process of reducing the hydrocarbon from C₂₀ to C₆ straight carbon chain. Most of the conventional fuels, viz. petrol, diesel and kerosene are in this range. It is a well known fact that the hydrocarbon fuels are depleting and becoming very scare and expensive. Research and development are directed towards inventing a novel kind of hydrocarbon fuel which will substitute the existing fuel known in the art.

[0025] Further, research is directed to find a novel energy fuel based on biosource. Inventing a novel bio-fuel and a process of manufacturing bio fuel will result in considerable saving of foreign exchange as the World is heavily dependent on importing hydrocarbon fuel from each other. Apart from the aforesaid fact, use of this hydrocarbon fuel has various other benefits which will be enumerated in the following description.

[0026] Having said the importance of invention of novel hydrocarbon fuel based on bio source, it is herein described the composition of the hydrocarbon fuel, the process of manufacturing the said fuel and various advantages of using the fuel for various industries including transport.

[0027] Accordingly, it is the primary object of the invention to find a novel hydrocarbon fuel based on bio-source which is unique.

[0028] It is another object of the invention to invent a novel of manufacturing the said hydrocarbon fuel.

[0029] It is another object of the invention to invent a novel hydrocarbon fuel, which emit very less amount of carbon-monoxide into the atmosphere as compared to known fuels there by, resulting in eco friendly atmosphere.

[0030] Basic raw materials used in the process of manufacturing this hydrocarbon fuel from a novel bio-mass source are listed below.

Boswellia ovalifololata Plant

[0031] FAMILY—BURSERACEAE

[0032] GENUS—*BOSWELLIA*

[0033] SPECIES—*OVALIFOLIOLATA*

[0034] This is a moderate or large branching tree with a bole of 15 to 121 feet in height and 3-5 feet in girth, generally found in dry, hilly, deciduous forests of India at an altitude of 450-950 Msl. Only one species occur in INDIA and the remaining species are found in Arabian and African Countries.

[0035] Leaves—are apically clustered, oblong to lanceolate.

[0036] Calyx—Tube Broadly campanulate, lobes 5-7 triangular.

[0037] Petals—5-7, White, Ovate, Saccate at base.

[0038] Disc—annular, crenate, free from calyx.

[0039] Stamens—10-16, inserted below disc.

[0040] Ovary—3 celled, Ovules 2

[0041] Another variant, *SERRATA* with serrated and pubescent leaves, has also been observed.

Methods of Extraction of a Highly Volatile *Boswellia* oil:

[0042] 1. Absorption on purified fats

[0043] 2. Extraction by means of volatile solvents

[0044] 3. Chromatographic method

[0045] 4. Steam distillation and fractionation (patent still methods)

Terpenoids

[0046] Terpenoids are organic compounds, which occur in the plant kingdom, obtained from the sap, and tissues of certain plants viz. *boswellia* and piper cubeba.

Isoprene Rule

[0047] Terpenoids follow isoprene rule, the carbon skeleton of which can be represented with the help of isoprene rule.

[0048] Mono and sesquiterpenoids are found in the leaves and trunk of *Boswellia* plants. *Boswellia* oil containing Terpene hydrocarbons are usually pale yellow in colour and has an agreeable odour. The following is the typical composition of the *boswellia* oil:

Specific Gravity 15° C.—0.8446

Dipentene (or) Limonene

Molecular Formula—C₁₀H₁₆

Molecular Weight—136.23

Carbon—88.16%

Hydrogen—11.84%

[0049] Practically, insoluble in water but soluble in ether. d-form, mobile oil, bp—175° C.-178° C.

[0050] The aforesaid raw materials, in their proportion are mixed homogeneously and heated to obtain the hydrocarbon fuel. This hydrocarbon fuel can be used as such or the contents of raw materials are heated with aluminium oxide in a vessel. When the heating takes place, the large molecules are broken into smaller molecules. This results in a quality of the hydrocarbon fuel matching that of Aviation Fuel. The syner-

gic effect of the various raw materials results in the special quality of the hydrocarbon fuel.

[0051] The various advantages of the hydrocarbon fuel of our invention are as follows:

[0052] 1. The emission of carbon monoxide is less compared to conventional hydrocarbon fuels and hence eco-friendly.

[0053] 2. The cost of production is very less, with the result the fuel is very economical.

[0054] 3. The fuel is obtained from an exclusive bio-source which is available extensively and in plenty on Earth and a hydro y 38X carbon fuel is a reasonable source of energy is split into lighted material leading to a novel kind of hydro carbon fuel which has extensive application in the area of energy and transportation, wherein subjecting the hydrocarbon fuel.

1. Ethyl alcohol is manufactured by fermentation of starch and sugar.

2. Methyl Alcohol is manufactured by wood.

3. Ethyl Formate is mostly by fermentation water sugarcane base.

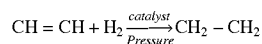
4. Cyclopentane is prepared from the ethyl ester of adipic acid. Adipic acid is found in beet juice.

[0055] A hydrocarbon fuel in accordance with the invention wherein the raw material BENZOIL PEROXIDE should not exceed 10% of total weight of the composition.

[0056] The hydrocarbon fuel in accordance with the invention wherein the raw material Glycerine should not exceed 40% of total weight of the composition.

[0057] The hydrocarbon fuel in accordance with the invention wherein limonene is basically unsaturated compounds. With carbon-carbon double bond. ($>C=C<$). They maybe converted into saturated compounds by the reduction process. This is done by exposing the compounds under the jet of hydrogen gas in the presence of a catalyst.

[0058] In the reduction process, terpenes/alkenes are converted into alkanes.



[0059] The various types of catalyst used are,

Pt/H₂ (2 atm).

Ru/H₂ (5 atm)

Rh/H₂ (5 atm)

[0060] The said raw material required heating with Al₂O₃ in order to obtain the hydrocarbon fuel.

[0061] A novel process of manufacturing the said hydrocarbon fuel in accordance with the invention wherein the aforesaid raw materials are homogeneously mixed in a vessel and optionally heated. In the above process, larger molecules are broken down into smaller ones.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT OF THE INVENTION

[0062] Now, the invention will be described in detail with reference to the accompanying description. The nature of the invention and the manner in which it is to be performed is clearly described in the following description. The invention

in general covers the composition of a novel hydrocarbon fuel and a process of manufacturing the said hydrocarbon fuel.

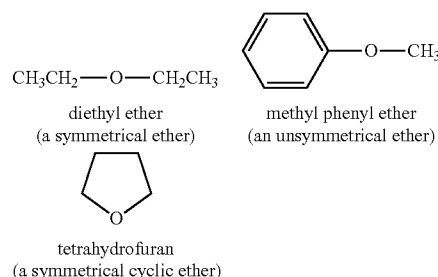
BACKGROUND

[0063] Ethers are compounds of formula R—O—R¹, where R and R¹ maybe alkyl groups or aryl (benzene ring) groups. Like alcohols, ethers are related to water, with alkyl groups replacing the hydrogen atoms. In an alcohol, one hydrogen atom of water is replaced by an alkyl group. In an ether, both hydrogen are replaced by alkyl groups. The two alkyl groups are the same in a symmetrical ether and different in an unsymmetrical ether.

H—O—H	R—O—H	R—O—R ¹
Water	Alcohol	Ether

Examples of Ethers

[0064]



[0065] As with other functional groups, we will discuss how ethers are formed and how they react. Ethers (other than epoxides) are relatively unreactive, however, and they are not frequently used as synthetic intermediates. Because they are stable with many types of reagents, ethers are commonly used as solvents for organic reactions. In this chapter, we consider the properties of ethers and how these properties make ethers such valuable solvents for organic reactions.

[0066] The most important commercial ether is diethyl ether, often called “ethylether”, or simply “ether”. Ether is a good solvent for reactions and extractions, and it is used as a volatile Starting fluid for diesel and gasoline engines. Ether was used as a surgical anesthetic for over a hundred years (starting in 1842), but it is highly flammable, and patients often vomitted as they regained consciousness. Several compounds that are less flammable and more easily tolerated are now in use, including nitrous oxide (N₂O) and halothane (CF₃—CHCLBr).

[0067] IN the year 2001, The Government of INDIA, found that from JETROPA plant, Bio-Diesel could be manufactured. From this, THIS Invention was Inspired.

[0068] The S_N1 reaction goes much more readily in polar solvents that stabilize ions. The rate-limiting step forms two ions, and ionization is taking place in the transition state. Polar solvents solvate these ions by an interaction of the solvent's dipole moment with the charge of the ion. Protic solvents such as alcohols and water are even more effective solvents because anions form hydrogen bonds with the —OH hydrogen atom, and cations complex with the nonbonding electrons of the —OH oxygen atom.

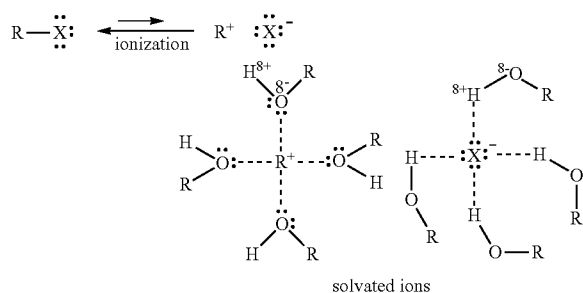
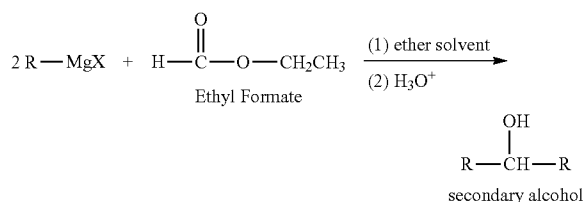


TABLE 9-6

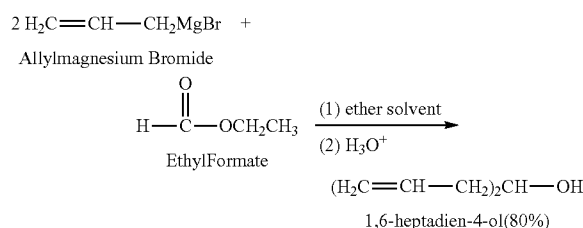
Dielectric Constants (ϵ) and Ionization Rates of t-Butyl Chloride in Common Solvents.		
Solvent	ϵ	Relative Rate
Water	78	8000
Methanol	33	1000
Ethanol	24	200
Acetone	21	1
Diethyl ether	4.3	0.001
Hexane	2.0	<0.0001

[0069] Ionization of an alkyl halide requires formation and separation of positive and negative charges, similar to what happens when sodium chloride dissolves in water. Therefore, S_N1 reactions, require highly polar solvents that strongly solvate ions. One measure of a solvent's ability to solvate ions is its dielectric constant ϵ , a measure of the solvent's polarity. Table 9-6 lists the dielectric constants of some common solvents and the relative ionization rates for t-butyl chloride in these solvents. Note that ionization occurs much faster in highly polar solvents such as water and alcohols. Although most alkyl halides are not soluble in water, they often dissolve in highly polar mixtures of acetone and alcohols with water.

[0070] A formate ester, such as Ethyl Formate, reacts with an excess of a Grignard reagent to give (after protonation) secondary alcohols with two identical alkyl groups.



[0071] Propose a mechanism to show how the reaction of Ethyl Formate with an excess of Allylmagnesium Bromide gives, after protonation, 1,6-heptadien-4-ol.



The Salient Feature of the Invention is that the Following Mixtures can be Effectively Used as Fuels for Automobiles.

1. Ethyl Formate+Ethyl Alcohol+Tetrahydrofuran+Iso Propyl Alcohol

[0072] $\text{C}_3\text{H}_6\text{O}_2 + \text{C}_2\text{H}_6\text{O} + \text{C}_4\text{H}_8\text{O} + \text{C}_3\text{H}_8\text{O}$

[0073] 40%+10%+20%+30%

2. Methyl Alcohol+Glycerol+Tetrahydrofuran+Iso Propyl Alcohol

[0074] $\text{CH}_3\text{OH} + \text{C}_3\text{H}_8\text{O}_3 + \text{C}_4\text{H}_8\text{O} + \text{C}_3\text{H}_8\text{O}$

[0075] 40%+10%+20%+30%

3. Iso Propyl Alcohol+Glycerol+Tetrahydrofuran+Tertiary Butyl Alcohol

[0076] $\text{C}_3\text{H}_8\text{O} + \text{C}_3\text{H}_8\text{O}_3 + \text{C}_4\text{H}_8\text{O} + \text{C}_4\text{H}_{10}\text{O}$

[0077] 40%+10%+20%+30%

4. Ethyl Alcohol+Tetrahydrofuran+Tertiary Butyl Alcohol+Limonene

[0078] $\text{C}_2\text{H}_6\text{O} + \text{C}_4\text{H}_8\text{O} + \text{C}_4\text{H}_{10}\text{O} + \text{C}_{10}\text{H}_{16}$

[0079] 20%+50%+10%+20%

5. Ethyl Alcohol+Tetrahydrofuran+Iso Propyl Alcohol+Limonene

[0080] $\text{C}_2\text{H}_6\text{O} + \text{C}_4\text{H}_8\text{O} + \text{C}_3\text{H}_8\text{O} + \text{C}_{10}\text{H}_{16}$

[0081] 50%+20%+10%+20%

6. Ethyl Alcohol+Glycerol+Tetrahydrofuran+Cyclopentane

[0082] $\text{C}_2\text{H}_6\text{O} + \text{C}_3\text{H}_8\text{O}_3 + \text{C}_4\text{H}_8\text{O} + \text{C}_5\text{H}_{10}$

[0083] 60%+15%+20%+5%

[0084] Accordingly, in another embodiment of invention, the catalyst used was Ru, Pt or Rh. and Benzoyl Peroxide.

1. A synergistic herbal based hydrocarbon fuel wherein the following ingredients in the proportion are the following:

INGREDIENTS	PROPORTION BY WEIGHT
a. Limonene	2% to 60%
b. Benzoyl Peroxide	1% to 5%
c. Iso Propyl Alcohol	1% to 5%
d. Glycerine	5% to 25%
e. Tetrahydrofuran	10% to 40%
f. Tertiary Butyl Alcohol	10% to 20%
g. Ethyl Formate	5% to 30%
h. Methyl alcohol	5% to 25%
i. Cyclopentane	2% to 10%
j. Ethyl Alcohol	22% to 40%

2. A synergetic herbal based hydrocarbon fuel as claimed in claim 1 wherein the following raw material are used in the following proportion by weight so as to obtain ideal combination of said fuel having maximum efficiency.

INGREDIENTS	PROPORTION BY WEIGHT
a. Limonene	25%
b. Benzoyl Peroxide	1%
c. Iso Propyl Alcohol	1%
d. Glycerine	5%
e. Tetra Hydrofuran	15%
f. Tertiary Butyl Alcohol	10%
g. Ethyl Formate	5%

-continued

INGREDIENTS	PROPORTION BY WEIGHT
h. Methyl alcohol	5%
i. Cyclopentane	12%
j. Ethyl Alcohol	15%

3. A hydrocarbon fuel as claimed in claim 1 wherein, the raw material Benzoyl Peroxide should not exceed 5% of total weight of the composition.

4. A hydrocarbon fuel as claimed in claim 1 wherein Ethyl Formate, Iso Propyl Alcohol, Tetra Hydrofuran, Limonene are basically compounds containing reducible components which require processing by exposing them under the jet of hydrogen gas in the presence of a catalyst as defined in the description.

5. A hydrocarbon fuel having a composition as described as under having ideal combination by weight, wherein the specific raw materials mentioned herein are combined to obtain hydrocarbon fuel.

INGREDIENTS	PROPORTION BY WEIGHT
Tetra Hydrofuran	20% to 40%
Ethyl Formate	25% to 40%
Methyl alcohol	25% to 40%
Limonene	10% to 15%
Tertiary Butyl Alcohol	25% to 40%

Wherein, the said raw materials do not require heating in order to obtain the said hydrocarbon fuel.

6. A hydrocarbon fuel having a composition as described as under having ideal combination by weight. Wherein in specific raw materials mentioned herein are combined to obtain hydrocarbon fuel.

INGREDIENTS	PROPORTION BY WEIGHT
Tertiary Butyl Alcohol	20%
Cyclopentane	10%
Ethyl Formate	50%
Tetra Hydrofuran	10%

Wherein, the said raw materials when combined to form hydrocarbon fuel p-1×1 require heating in the presence of AL_2O_3 .

7. A hydrocarbon fuel having a composition as described under:

INGREDIENTS	PROPORTION BY WEIGHT
Limonene	60%
Cyclopentane	20%
Tetra Hydrofuran	10%
Tertiary Butyl Alcohol	10%

8. A novel process of manufacturing the said hydrocarbon fuel as claimed in claim 1 wherein the aforesaid raw materials are homogeneously mixed in a vessel so as to obtain a hydrocarbon fuel and optionally heated so that larger hydrocarbon molecules are broken into smaller ones.

9. A novel hydrocarbon fuel from bio-source as claimed in claim 1 wherein the said process is carried out in the presence of a suitable catalyst.

10. A novel hydrocarbon fuel from bio-source as claimed in claim 1 wherein the said process is carried out in the presence of catalyst Ru (H_2 ; 5 atm) or Pt (H_2 ; 2 atm).

11. A novel hydrocarbon fuel from bio-source as claimed in claim 1 wherein the said process is carried out in the presence of catalyst Rh (H_2 ; 5 atm).

12. A new hydrocarbon fuel with the following composition has been developed as shown in claim 1: Ethyl Alcohol, Tetrahydrofuran and Tertiary Butyl Alcohol in the ratio 20%, 70% and 10% or 70%, 20% and 10% respectively.

13. A new hydrocarbon fuel with the following composition has been developed as shown in claim 1: Methyl Alcohol, Tetrahydrofuran and Iso Propyl Alcohol in the ratio 20%, 70% and 10% or 70%, 20% and 10% respectively.

14. A new hydrocarbon fuel with the following composition has been developed as shown in claim 1: Ethyl Formate, Tetrahydrofuran and Iso Propyl Alcohol in the ratio 40%, 50% and 10% or 50%, 40% and 10% respectively.

15. (canceled)

* * * * *