

Research Article

Carbon Negative Genetically Engineered Foods with Recombinant Genes for Humankind

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Abstract

To cope with the anticipated in the next 10-25 years Global starvation of Humankind due to the anticipated shortage of the fresh water on Earth at that time frame at rate of ~25,920 liters per day, or 9,467 m³ per year we have developed the expression system to express recombinant genes of bovine meat (bovine myoglobin and lamb (sheep) myostatin) combined with the genome of pinto beans to manufacture Carbon Negative genetically engineered foods as foods for the Humankind. Said system of the genetically engineered foods was created with the use of our electro transformation Generator using the electro transformation procedure we have developed specifically for this purpose at the eukaryotic host system which is based on the white tubular mushrooms known as Borovik. Our manufacturing facility has the advanced sterile rooms for cultivation of the mushroom recombinants. For instance, the genetically engineered meats were as tasty as the real not genetically engineered meats as per the opinion of our top Senior Executive management team which has tasted the meals the Author has prepared at our corporation site. Said genetically engineered foods will be available at the new type of the gas stations to save plenty of time to our valuable customers visiting them. Said genetically engineered meats have to be approved for mass consumption by the respective Governmental authorities.

Keywords: Global Humankind starvation; Shortness of the fresh water on Earth in the next 10-25 years; Recombinant genes; Carbon Negative recombinant foods; Expression system in tubular mushrooms Borovik

Introduction

As we have described earlier the Space vacuum sucks fresh water vapors and fresh water ice crystals directly from the planet Earth's air [1-3]. They then travel in the Space vacuum in the unknown direction. We do anticipate the shortness of the fresh water in the next 10-25 years from now [4]. Said shortness also means the shortness of the crops and livestock manufacture since the fresh water composes only about 2.5 % of the total planet water and the rest of the planet water is the ocean / sea salty water which is not sucked by the outer Space vacuum directly, only the vapors of the fresh water above the ocean / sea level or above the Ground which serves as the natural reserve of the fresh water coming from melting ice / snow and rains [4]. Speaking of the fresh water loss from the surface of the ocean / sea the Author would like to bring herein his recollections when he started working for Celanese Chemicals Corpus Christi Technical Center in 2001. So he spoke to the other employees of the same company and has learned from them that at the latitude [5] of Houston TX the farmers collect annually two harvests of corn. At the same time at McAllen TX latitude [6] near the border with Mexico the farmers collect already three harvests of corn annually. That means the Sun light is distributed very unevenly over the Earth planet surface. The most of it comes from our Sun to the Earth Equator area where solar panel batteries might collect up to 3,300 Wt/m² of the solar panel's batteries.

Discussing the fresh water loss to the Space vacuum (Hunten D. 1971 Airglow — Introduction and Review. Environmental Science [7]), at oxygen loss rate of ~10²⁵/s that corresponds to ~300 g/s of the fresh water loss. Over the age of the solar system (4.5 billion years which is approximately ~ 1.4×10¹⁷ s) this loss rate gives 4.2×10¹⁹ g of fresh water lost to the Space vacuum. The current the fresh water loss figure is equivalent to about ~25,920 liters *per day*, or 9,467 m³ *per year*. And the reference of that figure seem to be the paper "Escape of O⁺ through the distant tail plasma sheet" that used measurements from the STEREO-B (Solar Terrestrial Relations Observatory) spacecraft [8]. That would correspond to a total loss over Earth's history of 42,000 km³ of the fresh water to the Space vacuum which is equivalent to about 12 cm of ocean / sea level decrease. However that is a straightforward extrapolation of the current fresh water loss rate, because the Authors of said article acknowledged that they do not know how to model the Earth's magnetosphere would have behaved in the past when the Sun was weaker. Although for a weaker Sun it would be reasonable to expect smaller fresh water vapors losses. If we assume that the Earth oxygen loss to the Space vacuum corresponds to the loss of the fresh water vapors / fresh water from the ice crystals (there is the layer of the air at the altitude of about 15 miles above Earth surface with the temperature of about - 60 ° C since the Space vacuum has its temperature of about - 293 ° C [4] the fresh water loss then an Earth's oxygen loss rate of ~10²⁵/s corresponds to daily ~300 g/s of the fresh water loss to the outer Space vacuum. Over the age of

the Solar system (4.5 billion years which is approximately $\sim 1.4 \times 10^{17}$ s) this the fresh water loss rate to the Space vacuum gives 4.2×10^{19} g of the fresh water loss to the Space vacuum [9].

Outlined herein problem of the air CO_2 production by the cars, aircrafts including commercial ones, ships including commercial ones, etc. is more complicated by the growing Earth population (the total number of Earth inhabitants is going to reach 15 billion by the year of 2050 [4]). In 2010 NASA has detected the air CO_2 level of 400 ppm which they have called the "Point of No Return" to the self-maintaining ecological conditions on planet Earth [10]. The problem with the air CO_2 is that the CO_2 selectively absorbs solar infra-red energy converting it to heat via vibration of the CO_2 molecules and said vibration produces heat transferred to the Ground the the sea / oceans [11].

The air CO_2 is among the heaviest gases composing the air gas blend [4] and therefore it spreads over the surface of ocean / sea and over the Ground. By heating said surfaces air CO_2 increases the fresh water evaporation to the air. The air layer is only 400 miles wide covering with one end the Earth surface and the other its end of it contacts the Space vacuum. Most critics of our point of view that the Earth loses fresh water to the Space vacuum tell that the layer of air mass above 15 miles from the Earth surface has its temperature of about -60°C and the fresh water vapors freeze to from the ice crystals that fall back to Earth surface due to the gravity force. This is not completely true since said people never lived in Europe in about 40-50 years from now at the era of no wide distributed washers / driers. The Author lived in Europe at said time and exactly remembers how great household wives dried their laundry during winter times when the air temperature there was below 0°C (fresh water freezing point). So said housewives had long ropes at their backyards to perform drying of the washed linen and let the linen dry at the negative temperatures Centigrade during winter times. Said linen dried perfectly well at said ropes and that was as almost fast as during summer times when the temperature was way above the freezing point of the fresh water.

The air CO_2 as any CO_2 selectively absorbs solar infra red energy converting it to heat due to the vibration of the CO_2 molecules [11]. Molecules of CO_2 absorb energy from the infra red solar radiation. Infra red Sun protons (photons) convey their energy to the molecules of the air CO_2 causing their vibration. Said molecular vibration produces heat transferred directly to the environment where said air CO_2 molecules reside. Due to its density CO_2 spreads over the Ground or the ocean / sea surface transferring them the heat from the vibration of the CO_2 molecules caused by their interaction with the protons of the infra red solar radiation [11]. That always causes the extra amount of the fresh water vapors distribution in the air which is connected with the Space vacuum reliably sucking from the air its oxygen and the fresh water vapors then traveling in the Space vacuum away from Earth. Therefore the problem of the Global warming and the shortness of the fresh water on Earth depends mostly on the air CO_2 levels now often exceeding locally 450-600 ppm [32].

So we came close to the idea to support the loss of the fresh water vapors to the Space vacuum with our remedies to make the consequences of that loss much less than it will be. Shortness of the fresh water means the shortness of crops production and the livestock manufacture. That literally means the shortness of food as we have

projected that happening in the next 10-25 years from now. Then certain people will kill for a piece of bread and hamburger. To fight that we have offered the manufacture of the Carbon Negative genetically engineered foods we plan to sell at our new type of the gas stations [33] to save time for valued customers buying our Carbon Negative fuels to power their vehicles. Therefore, this article is devoted to the description of our corporate activity intended to prepare and use for the manufacturing purposes of the genetically engineered foods as we have planned before doing so.

Several words on the genetically engineered foods. Genetic modification is a special set of gene technology use that alters the genetic machinery of living organisms as protozoa, animals, plants or microorganisms. Combining genes from different organisms is known as the recombinant DNA

technology and the resulting organism is said to be 'Genetically modified (GM), Genetically engineered' or "Transgenic". Transgenic foods have to be approved by the respective the US Governmental Agencies prior to their use by the customers. The transgenic crops grown commercially in the field are herbicide and insecticide resistant grains, soybeans, corn, cotton and canola. Other crops grown commercially and/or field-tested are sweet potato resistant to a virus that could destroy most of the African harvest, rice with increased iron and vitamins content that may alleviate chronic malnutrition in Asian countries and a variety of genetically engineered plants that are able to survive the weather extremes. There are bananas that produce human vaccines against infectious diseases such as hepatitis B or fish that matures more quickly, the fruit and nut trees that yield years earlier the natural ones and also certain plants that produce new plastics with unique properties. Technologies for genetically modifying foods offer dramatic promise for meeting some areas of greatest challenge for the 21st century. Like all new technologies they also pose certain risks, both known and unknown. Controversies and public concern surrounding GM foods and crops commonly focus on human and environmental safety, labeling and consumer choice, intellectual property rights, ethics, food security, poverty reduction and environmental conservation. With this new technology of gene manipulation what are the risks of "tampering with Mother Nature", etc. [11]. Therefore, we will need the approval of the respective Governmental agencies per our genetically engineered foods.

Scientists first discovered in 1946 that DNA can be transferred between organisms [12]. There are several mechanisms for the DNA transfer and these DNA transfers occur in nature on a large scale, for example, it is a major mechanism for antibiotic resistance in pathogenic bacteria. The first genetically modified (GM) plant was produced in 1983 using an antibiotic-resistant tobacco plant. China was the first country to commercialize a transgenic crop in the early 1990s with the introduction of virus-resistant tobacco. In 1994, the transgenic 'Flavour Saver tomato' was approved by the Food and Drug Administration (FDA) for marketing in the USA. The modification allowed the tomato to delay ripening after picking it. In 1995, few transgenic crops received marketing approval. This includes canola with modified natural oil composition (Calgene), *Bacillus thuringiensis* corn/maize (Ciba-Geigy), cotton resistant to the herbicide bromoxynil (Calgene), *Bacillus thuringiensis* cotton (Monsanto), *Bacillus thuringiensis* potatoes (Monsanto), soybeans resistant to the herbicide glyphosate (Monsanto), virus-resistant

squash (Asgrow) and additional delayed ripening tomatoes (DNAP, Zeneca/Peto, and Monsanto) [12]. A total of 35 approvals had been granted to the commercially grow 8 transgenic crops and one flower crop of carnations with 8 different traits in 6 countries plus the EU till 1996 [12]. As of 2011, the USA leads a list of multiple countries in the production of GM crops. Currently, there are a number of food species for which the genetically modified version exists [13]. Some of the foods that are available in the market include cotton, soybean, canola, potatoes, eggplant, strawberries, corn, tomatoes, lettuce, cantaloupe, carrots, etc. Genetically modified products which are currently in the market pipeline include medicines and vaccines, foods and food ingredients, feeds and fibers. Locating and the use of genes for important traits such as those conferring insect resistance or desired nutrients like the taste of meat and meat components is one of the most limiting steps in the process of food genetic engineering.

So herein we claim that we will help the Humankind to cope with the shortness of the fresh water and related to that shortness of the livestock and the crops production meaning Global starvation for everyone in the next 10-25 years. During that time we have to be in the war with the international petroleum corporations started by SHELL from the attempted murder of this Author, the time we might think over now might be as long as might be 55-70 years (the Author is intended to live for 120 years and his businesses will be inherited by his ancestors), so during that time we will manufacture enough genetically engineered foods based on our white tubular mushrooms of the genus *Boletus edulis* known also as Borovik in some European countries but having its very close relatives in the US to feed the starving Humankind. We claim we will do that easily by manufacturing enormous amounts of Carbon Negative genetically engineered foods at our corporations and sell such genetically engineered foods after their Governmental approval at our new type of the gas stations.

Educated capitalists like Mr. Elon Musk and Mr. Jeff Bezos are interested in developing the Space shuttles capable to travel much longer distances compared to the existing Space flights and intended to make possible the relocation of the portion of the Humankind to the other planets similar to Earth by the presence of fresh water and the temperatures round the year due to said herein global ecological catastrophe approaching us as we believe in the next 10-25 years due to the increased amount of the air CO₂ (effect of the international petroleum corporations manufacture of Gasoline a Diesel fuel) [14-16]. So, we promise herein in this original article to feed the Humankind and there would not be any need for the long term Space travel to relocate part of the Humankind to other planets similar to Earth. Everybody will be satisfied with our genetically engineered foods sold at our new type of the gas stations along with the Carbon Negative fuels and Carbon Negative fuel mixtures.

This original article is devoted only to the bovine and sheep recombinant genes expression in white tubular mushroom Borovik *Boletus edulis* BD 747 [22]. Neither the size of this original article nor our time allowed us to describe other recombinant genes expression experiences in the genetically modified food manufacture besides the already mentioned ones above. Therefore, the articles with the expression studies of recombinant genes encoding spices of various kind, vegetables, beans, etc. will follow this one soon as separate original article.

Materials and Methods

Said genetically engineered Carbon Negative foods have be totally Carbon Negative since the recombinant organism's white tubular mushrooms of the family Borovik will grow using our process of manufacture of the Carbon Negative fuels manufacture waste, the Carbon Negative biomass of our biocatalysts which we use to manufacture our Carbon Negative fuels. The creation and maintenance of the mushrooms has to be performed under the strict sterile conditions as we have established at our corporation site for this purpose to avoid any sort of contamination of the genetically engineered Carbon Negative foods produced by the genetically modified white tubular mushrooms of the family Borovik to which we have inserted the recombinant proteins formed from the bovine myoglobin and lamb (sheep *Ovis aries*) myostatin genes. The sequences of some recombinant proteins are given below.

Recombinant bovine myoglobin (NCIB deposition #2767414):

>Seq 2767414

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1 aaaaattaca agaataata gtgtctacct aaggtgaaaa cacataggag atttgtatcg
61 gtgaaatag gacattctgg cttcgggct gtctgtgcc tcccgagccg
gtaataataag
121 tcaacctaag gtgaaacat attggagggtg aaatatggag attccggctt
tcgggcttgc
181 ctgtgctgcg cgagccgatt tgtatcggct atcacatcgg tacattgtat
ccgccggtat
241 acttacattc tggtaattac gtatataatg acctaaagtg aaaacacatg
tagaagggtga
301 aatatggaga ttcaggcttg tctgtgcctg ccgagcgat ttatgtcggc tcatagcatc
361 ggagacattg tatattcacc ggtaagactt gcattcaatg gtaattacaa
gtatataatg
421 tccaccaaaa agttaaacca cataggagat gaaatatgga ggtttcggcat
tgaggcttg
481 tgtgtgcctg ccgagccgat tattaccatc aatgacattg tatattcacc ggtgacattt
541 gcatccatag gcaattacaa gtatataatg tctacctaag gtcaaaaaa
attggagggtc
601 attgcagggtg aaatatggag atttcggttt cgggcttatg tgcgcctgcc
gtcaaaaaa
661 gaccgattt gtatcgggcta atagcatcgg tgacattgta tattcactgg
tgacattga
721 atgccatagc aattacaagt atatagtgtc taactaaggt gaaaacacat
tggaggtaa
781 atatgagatg tccggcttgc gggctgtgt gtgcttcccg agccgattgg
tatcggcatt
841 accatcggtt acatatatat tcacggtag catttgcatt catttgcac atgtgtaatta
901 caagtatat tgtctaacta gtgtctaact ggtgaaaaca ggtgaaaaca
attggagggtg
961 gattggagga atatggacat tccggcttgc ggctgtgtg gcctgccgag
ccgatttatgt
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1021 cggctcatag catcgggtgac attgtattatt accgggtgaca cttgcatcca
 gggatttatgt
 1081 cttgcaatgc cttgcaatca tagcacttca agtttataag tcttacatag
 gggaaaacaa
 1141 tgaaaacaca aggaggtaac atatggagat tcagctttcg gcttatctgtg
 gcttatctgtg
 91201 gtctatctgg cctgccgagc cgatttgtatc agctattacc atcatgacat
 tgtatatttca
 1261 tattcacccg ggtgacatttg cattccatag aattacaagt atataaatgac
 tacctaaggt
 1321 tattcacccg ggtgacatttg cattccatag aattacaagt atataaatgac
 tacctaaggt
 1381 gagccgattg tgtatcgcc taatagcatt cggtgacat ttgtatattc
 cactgggtgag
 1441 cacttgaatt gccatagcaa ttacaagtat ataattgtga aacaagggtga
 aaacatagga
 1501 gacgtgaaaa tatggcagtt tcggcattcg ggcttatctg tgctgctggtg
 gccgattggt
 1561 atcggctatt accatcgggt acatttatat ttcactggta gcatttgag
 tcaatgataa
 1621 ttaacagtat atagtgtcta ctaggtgac aaacacatac taggaggtgc
 aaatatggac
 1681 ttgcggtt tccagcttgt ctgtgtctgc cgagctgatt aatgtcagct
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 1801 gaaaacacat aggagatgaa atatggagat ttcggttttc gggcttctat
 gtgcatgccg
 1861 agccgattgg tatcggctat caccatcgggt acattatatt tcaactgtag
 cattttgcat
 1921 cattgcattt caatggtaat tacaagtata taagtcaact ctaagggtgac
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 1981 gaggtgaaac tatggacatt ccggctttcg ggcttgtgtg tgctgccag
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 cttatgggtgaa
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 1321 atcgggtaca ttgtatatcc gccggtatca cttacattca tcgtaattac
 aagtatataa
 1381 tgtctaccta aagtgaaaac acatagaagg tgaaatatgg agattcaggc
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 cacataggag
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 ttgagccgag
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 atagcatcgg
 1801 tgacattgta attcaccggt aacacttgca ttccatagca atcactggca
 caagtacaca
 1861 atgtccatcc aagggtgaaa cagcaggag atgaaatag gagattctgg
 cttttgggt
 1921 tgtctgtgcc tgctgagccc attagctgcg gtccatacag tcagtacat
 tgtatattca
 1981 ccgatacccg agctgtcggc agacaggacg acccagtagag tcgccctgtg
 tctttttct
 2041 tcaaacccca gctgtcggag acaggacacc cagtcagtcg ggttggtgct
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 aaaccccta
 2281 cttggttctc ctgtgtttta tgtacagag gttggaatcag gaaagcagat
 gaaagcagat
 2341 ccatttcaca cttgtgtag cagctgggag gagctttgat gatcaaatcc
 ttgatctta
 2401 gacccacca gaaggaatcc taaaattata gctagaatta acaagaaaagg
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 2461 ctttctcacc tcacctaag gatgaggaca caaaggacct aagaagggaa
 ggatgacccc
 2521 agagtcacaa gttcattaaa gtctgtaaaa tgccaaggat taagacacgg
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 2581 gacatatgtg gttctacacc tggctctgcc accgagctgt ttgtgtgacc
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 gggtaggtc
 5641 cgggttgag ggtcaagcc ttaggagtgt acttttcaa cattcacagc
 agaggcagat
 5701 ctggggccag aactcagct catgattct agtgctagt ctctccca
 gacatccg
 5761 gggctccca agatgtctc gacctggt gacctcacc tgtgggttct
 ggtcttga
 5821 tctgtcaggc aggagtcaa ggatcattgt cgccagataa taatagtcag
 gatctcaggc

5881 accctgaggt gaaaagtgt gtagatgagc tgtcagtgtg tagaagggtt
ggccggggcc

5941 ccagctgagg tagtgacatt gagcatggct gtgggcagca ctgggtgttc
tgggaaggca

6001 ggagggacat gcccttgggg gaagggggcg ctccctgtct gtgcgttatg
cccgtgtgtg

6061 tgtgtgtgtg tgtgcatgag cttactgtgt attatgggta tgtgccgtga
gacacttgtg

6121 cacacactggag tgtgtctgca gttaggttta aggggtgtct agagcagagg
aatcacaaa

6181 agagaaaagt ttcaaggac tgaagccatc agacaagaagg agggaaaagtc
cagcagagag

6241 ggtcacctctg gcagaggttt ccgggtgcaa cacaaaagag agacatgagg
ttatggaacc

6301 atttgtgtgt gtggtcttcc ctttgcccat gagtgaatg ggaanaatct
ctccctctc

6361 cccgtcggta tgactccctt taacgatccc cacctttctg cagaatgaa
gactgaagtc

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tgggaagagt

6481 gggggcctgg tctttggcag atggctccca ttagagattc tcaccgtcag
tactgggaaa

6541 aacaggaggag cacagcaaaa taagcaagcg ctttctgaagc ctgagagctg
ttcagactag

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The recombinant sheep myostatin (NCIB deposition # 2770247) is below: >Seq2770247(organism=Ovis aries=myostatin RECOMBINANT DNA

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 5101 gaacagcgag cagaaggaaa atgtggaaaa aaaggggctg tgtaatgcat
 gctgtggag
 5161 aaaaaaat aaatcctcaa gactagaagc cataaaaatc caaatcctca
 gtaagcttcg
 5221 cctggaacaa gctcctaaca tcagcaaaaga tgctataaga caacttttgc
 ccaaggctcc

5281 tccactccgg gaactgattg atcagtagca tgtccagaga gatgacagca
gcgacggctc

5341 cttggaagac gatgactacc acgttacgac ggaaacggtc attaccatgc
ccacggagtg

5401 tgagtagttc tgctagggca gagcaacgac caactttgc gctgttgct
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5521 cagctgaact gcgacattc ccttcttctg tcccccaatt gctaatac
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taaagcacta

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gagatatcaa

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cacatgtgga

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gaagagcaat

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tccttcagct

5941 cctctccatc cactacatag tgggatgctc ctctccatca agcctctctc
catattgctt

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tgctgttga

6061 aaggaagcaa cctgagtagt gggtagctgg actgttatt actgctgagg
caacagcttg

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aaatttggga

6181 agttattcaa tctgtgatt acaaaggta ccatttctc ctatttcaa ttaaggtctg

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gcaggtgaaa

6421 cattcattc taccaccact ccacaaaact ctaattagag agattccctg
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gcccttcaa

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6661 actcccaaaa ggaaaaacaa aaaccttta ctgtagtatc aaggaaaaa
acagctaacg

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aaaaaatgat

6781 gctagcactg agacagtgat gatttcagga agagatactc agaaattaac
actctgtgga

6841 gaagcagcag ggaaatgctg gtcttcggaa tgaagagaaa taatcctga
gcaggggagca

6901 aacgtagcag acttgatga ggaataagtt cccagaaggg tagaaagttc
agaaatgctt

6961 gcaaatgttt ttgagaata ctaattgat atgtttgtgt cagagacatc tatctgcatg

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7081 cagaacccat ttttagagt cagagtaca gacacaccga aacgttccg
cagagatttt

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gctgacagt

247201 gatttcgaag cttttgatg ggactggatt atagcaccta aaagatacaa
agccaattac

7261 tgctccggag aatgcgaatt tgtgttcta cagaaatacc cgcacactca
cctgttacac

7321 caagcaaatc ccagaggctc agcaggccct tgctgcacac ccaccaagat
gtcccata

7381 aacatgctgt attcaatgg aaaagaacaa ataatatatg gaaagatacc
agccatggtt

7441 gtagatcgtt gcgggtgctc atgaaggctg tctgtagatc caccattcga
taaattgtgg

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aaattacgta

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tatcaacaa

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7741 gggaatcaat attcagtcac tcagacacaa atttatatgc agtttcaac
atatgttgt

7801 aatcaaaaagt aagctcctc tcctctgagg acagaaggag cgggctatta
aatcaacttc

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gtatacaca

7921 ctacacatta ccaccagaat catccttgaa cacttgaata tatagtgcag
agttatgata

7981 agatgaatc ccacgtaaat ggacaaatcc tgaagttagg gatggtatag
tgtatttagc

8041 gtgtttccat tcctttttt cgtagtagt ttagtaata atggcaatgg tgctacgtaa

8101 gcaggctgag taaatagaaa gatagtatc taagtgaag aatttagagt
aataatgaat

8161 ttgccctatc ctccaggtaca ctattcaaca ttcacaagaa aaggattttt
tttaacaaa

8221 aggtgaatag ttttctaac gtagtaaac aaaaggcagc acggaagtct
gatgttcaaa

8281 ccataatccc atatcgtaat ctgcctttgc aacgttacgc ttgcactat
gataagccaa

8341 tgcaaatagt tgggtgctac agaaattgtt aaaaaaccac ttgatataa
ctgacttggtg

8401 taatatgtat gcatcaatat ttgttaata aatgtttatt ttttaatctc tggctgtata

8461 cattcattac aaaaaaaaag tgatgttaac ctgtacttta gtttaataaa
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8521 tattctcttc ataacataat ttcttggtt ttaacagtaa tatgaagaa
cagtgaaca

8581 gagtaacca caggtaggaa gcagtaagag caaggaaaa gattgtattg
attttaaac

8641 catgcaaaa ctgcaaatct ttgtttatat ttacctatt atgctgcttg ttgctggccc

8701 agtggatctg aatgagaacg cgagcagaag gaaaatgtgg aaaaaagg
gctgtgtaat

8761 gcatgctgt ggagacaaaa caataaatcc tcaagactag aagccataaa
aatccaaatc

8821 ctcatgaagc ttgcctgga aacagctct aacatcagca aagatgctat
aagacaactt

8861 ttgcccaagg ctctccact ccgggaactg attgatcagt acgatgtcca
gagagatgac

8981 agcagcgacg gctcctgga agacgatgac taccacgtta cgacggaaac
ggtcattacc

9041 atgccacgg agtgtgagta gttctgtag ggcagagcaa cgacaaaaag
ggggtactgt .

We have found that expression of said recombinant genes requires elevated iron levels [17,18] and therefore we have grown our biocatalysts on the modified fermentation medium with the elevated iron content due to the increase of Fe^{2+} and Fe^{3+} due to inclusion to the fermentation medium to manufacture Carbon Negative biofuels additional Meat Extract 4.0 along with the increased amount of $\text{FeSO}_4 \times 7 \text{H}_2\text{O}$ to 0.0015 and addition of FeCl_3 to 0.01. Therefore the liquid medium for the industrial fermentation of Acetogen biocatalysts LMM (modified LM [21]), g/L:

NaHCO_3	3.5
KH_2PO_4	2.0
NaCl	0.4
NH_4Cl	0.4
$\text{MgCl}_2 \times 6\text{H}_2\text{O}$	0.33
$\text{CaCl}_2 \times 2\text{H}_2\text{O}$	0.05

Resazurin	0.001
Yeast extract	2.0
Caseine trypton	2.0
Meat Extract	4.0
Nicotinic acid	0.025
Cyancobalamin	0.025
Para-aminobenzoic acid	0.025
Ca D-pantotenat	0.025
Thiamine x HCL	0.025
Riboflavin	0.025
Lipoic acid	0.015
Folic acid	0.0001
Biotin	0.0001
Pyridoxal - HCL	0.005
Sodium nitrilotriacetate	0.0075
$\text{MnSO}_4 \times \text{H}_2\text{O}$	0.0025
$\text{FeSO}_4 \times 7\text{H}_2\text{O}$	0.0015
FeCl_3	0.01
$\text{Co}(\text{NO}_3)_2 \times 6\text{H}_2\text{O}$	0.0005
ZnCl_2	0.0005
$\text{NiCl}_2 \times 6\text{H}_2\text{O}$	0.00025
$\text{CuSO}_4 \times 5\text{H}_2\text{O}$	0.0005
$\text{AlK}(\text{SO}_4)_2 \times 12\text{H}_2\text{O}$	0.0005
H_3BO_3	0.0005
$\text{Na}_2\text{MoO}_4 \times 2 \text{H}_2\text{O}$	0.0005
Distilled water to the volume of	1 Liter
pH 6.5 +_0.2.	

The medium has to be sterilized by the autoclaving at 115°C (0.5 kg/m^2).

A number of factors influence the myoglobin content of skeletal muscles. Muscles are a mixture of the two different types of muscle fibers, fast-twitch and slow-twitch, which vary in various proportions between the skeletal muscles. Fast-twitch fibers have a low myoglobin content and are therefore also called white fibers. They are dependent on anaerobic glycolysis for the energy production. Slow-twitch fibers have a high amount of myoglobin and a greater capacity for oxidative metabolism. These fibers are often called red fibers. Therefore, dark meat color is a result of a relatively high concentration of slow-twitch fibers in the skeletal muscle of the animal [19]. We have used our unique Generator for electrotransformation/electrofusion we have invented before [23,24]. The recombinant constructs for the electrotransformation comprised the recombinant genes of bovine myoglobin and sheep myostatin flanked by the 6,598 bp pieces of the

DNA of the *Boletus edulis* BD 747 chromosome similar to what has been described in [25-32].

So, we have anticipated that the genetically engineered mushrooms with the recombinant bovine myoglobin and sheep myostatin (both recombinant genes are given above) will look like the real meat and taste like that: as shown in Figure 1.

The recombinant mushrooms expressing the recombinant myoglobin and recombinant myostatin were subjected to the real time cooking to make the soups and to prepare the shish kabobs using the recommended for that process [20].

Electrotransformation of *Boletus edulis* with the Recombinant DNAs

Under the horizontal laminar hood, we have segregated the mature (250 g or slightly above that the mass of the mushroom used) single *Boletus edulis* spores in their tubula using the sterile disposable scalpel [34]. Said spore mass was transferred into the sterile beaker. The beaker size depends on the mass of the mushroom. For the *Boletus edulis* of about 250 g mass the beaker size was 100 ml. For bigger mushroom size we recommend beakers of higher volume. The role of the beaker is to accommodate not only the separated from the mushroom spore mass in tubules but also to accommodate 12 times the volume of the medium for the spore germination. We used the medium for the mushroom *Boletus edulis* spore germination of the following composition, g/l:

Meat extract (Difco)	10.0
Soybean Extract (Sigma) [20]	10.0
Glucose	20.0
Na ₂ HPO ₄ 47.76 mM.(unhydrous dibasic)	6.78
KH ₂ PO ₄ 22,044 mM.(monobasic)	3.0
NaCl, 8.556 mM	0.5
NH ₄ Cl, 18.695 mM	1.0
Distilled water pH 7.0 +_0.5	938.61 g or up to 1 L

before autoclaving for 35 mi at 1.15 atm (kg/m²) or 116,523.75 Pa.

The medium was chilled to about 30 ° C before it's edition to the mass of spores / tubules. The diluted with said medium spores / tubules are incubated at 30°C for four-four and a half hour. After that we might anticipate that the spores stated to germinate making the bacteria-like in their shape structure. Before said medium addition the mass of tubules with spores is cut as much as possible with the sterile scalpel, mixed with that scalpel several times to provide the homogeneity of the tubules / spores' mass before the medium would be added. For the 250g mushroom we have added 80 ml of said medium. The added medium was mixed with the treated by sterile scalpel mass of the tiubules / sores and then transferred to the 15 ml centrifuge tubes by about 5 ml. Said plastic centrifuge tubes were placed in the thermostated at 30°C shaker set at 200 rpm shaking speed for 4 hours. Upon finish of the shaking, we collected the germinated spores of *Boletus edulis* by centrifugation. Collected germinating sores of *Boletus edulis* were transferred to 0.5 microliter poplypropylene tubes served as the ET cuvettes for the use of our electrotransformation / electorfusion Generator [35].

Said cuvettes were placed at the ice block per the electrotranformation (ET) procedure discussed at [23,24] and subjected to the procedure of ET. The ET was conducted by 3.5 ms square pulses at the electric field strength of 12.5 to 14 kV/cm. Immediately after the ET the content of the ET cuvettes was diluted with 0.5 ml of the same medium used to germinate the spores of *Boletus edulis*. The diluted suspension of the ET spores was then left at 30 oC for 1 hour and then the content of each 0.5 ml ET cuvette was transferred into the 15 ml centrifuge tubes, 5 ml of the same medium was added to each tube, pellets mixed with the medium and the tubes were transferred to the sterile incubated at 30 oC cultivation boxes for inoculation of soil filled by 10 cm of the sterilized by autoclaving 6 times for 2 hours at 120°C each time of autoclaving for 10 days soil with hing content of organics.

Results

Our anticipations that the recombinant myoglobin and myostatin in the recombinant mushrooms looked and tasted like real pieces of meat in both dishes, the soup and the *shish kabob*. Our ultimate success with the genetically engineered meat products based on the white tubular mushroom Borovik this one describing our experiences with other genetically engineered meat products, spices, bread-like structures for feeding and our experiences with the genetically engineered foods containing genes of beans. The tasters were the Author himself and the Senior executives of the corporations the



Figure 1: Real raw meat.

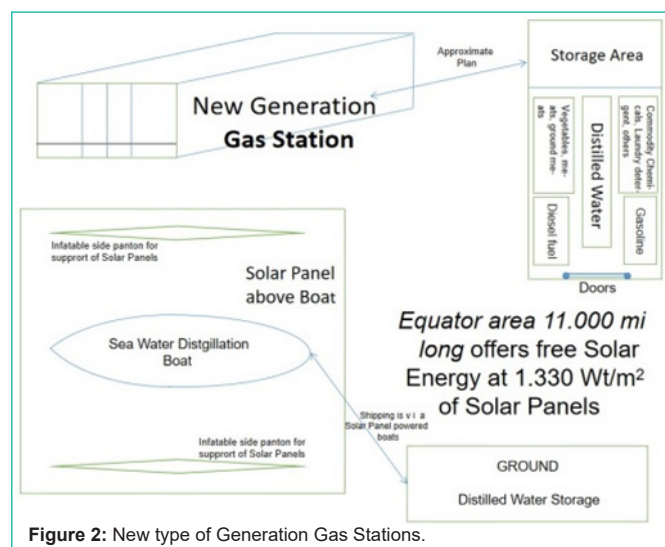


Figure 2: New type of Generation Gas Stations.



Figure 3: Meat store look.

Author owns. They all stated that the recombinant food is just like the real meat in both dishes, the soup and the *shish kabob*. We did not expand our tasting experience above that since the dishes were eaten completely by the Senior Executives of the corporations and the Author himself.

None of the Senior Executives of our corporations had any digestion disturbance after having said cooked Carbon Negative genetically engineered foods at our corporate site. No any outstanding health effect or side health reactions were observed by anyone who tasted the cooked genetically engineered meats. Everyone was really happy and wanted more of said foods whenever possible.

Discussion

As promised above we are ready to cope with the associated with the coming in the next 10-25 years shortness of the fresh water on our planet and related to that circumstance shortness of the manufacture of livestock and crops. We are ready to manufacture enough genetically engineered foods using our described herein strategy of using the Carbon Negative white tubular mushrooms where we will introduce the genes from meats, vegetables, spices, bread-like structures and beans. Other genetically engineered foods are will also be produced but currently we do not have any idea on that kind of foods the customers would like to get at our new type of gas stations shown below in Figure 2.

Our new type of gas stations selling not only the Carbon Negative fuels but also the distilled water we will produce in abundance from the sea water using Equator areas of Earth for the best insulation of our solar panels batteries combined with the alkaline batteries we plan to purchase at substantial discounts from the national shipyards decomposing the submarines of various types along with the DC motors from the same submarines to; power our distillation and shipment boats / ships.

The question is still existing how we would cope with the fresh water shortness by producing abundant amount of distilled water for doing laundry and washing the bodies of our valued customers. This topic is still in discussions around our top management and we will publish that topic also as soon as we will get the economically sound solutions for this problem.

Another topic comes out from our description of the genetically engineered meats production at our corporations. This is extremely important as it has to be done for any sort of Carbon Negative genetically engineered foods we will produce. The authorization of the Governmental authorities to use stated herein kinds of the genetically engineered foods we will produce at our corporations.

The sales are anticipated to be very nice. Like it happens in the real meat stores now as shown in Figure 3 below.

Article Summary

1. The expression system has been developed to express recombinant genes of various kinds of meat to manufacture Carbon Negative genetically engineered meats.

2. Said system is based on the white tubular mushrooms known as Borovik.

3. Said genetically engineered meats were as tasty as the real not genetically engineered meats as per the opinion of our top executive management team which has tasted the meals prepared at our corporation site.

4. Said genetically engineered foods will be available at the new type of the gas stations to save plenty of time to our valuable customers.

5. Said genetically engineered meats have to be approved for mass consumption by the respective Governmental authorities.

Declaration of Interests Statement

Ethics Approval and Consent to Participate

The Author has received all the proper documents granting the Ethical Approval and the Consent to Participate from the State of Texas officials. The Author has made sure that the ethical approval and his consent to participate in preparation and submission for publication of this article were properly approved by the respective authorities of the State of Texas.

Consent for Publication

The Author has expressed his complete consent to participate in work with this article and its publication in this Journal.

Availability of Data and Materials

The Author makes all his data and materials herein available for any third party. The data and materials might be obtained from the Author at PO Box 300230, Houston, TX, 77340. Email drmtyrin75@gmail.com. If any third party needs any materials used to publish this article, please, do contact the Author.

Competing Interests

This article is another the Author's move in the war which has started by SHELL International Petroleum Corporation some time back by attempted murder of the Author. The people hired by SHELL has totaled the Author's corporate car and did some other illegal things to the Author which have concluded the Author that the war with the international petroleum corporations has started already. No Houston FBI or Houston Police investigation of said attempted murder has happened and this is behind the responsibility of the Texas Governor with all the legal remedies the Author might use

in his fight to sue the State and its Governor Gregory Abbott. The attempted murder has the statute of limitations 20 years, and there are jurisdictions above the level of the State of TEXAS. The Author had certain legal problems with the at that time Attorney General of the State of Texas in 2013, now Texas Governor, Greg Abbott and the Author is going to resolve all the legal problems with the Texas Governor, regardless would he be dismissed or not. The corporate Author's website <http://syngasbiofuelsenergy.com> was destroyed by the person, the Attorney of Hirsch and Westheimer Law Firm, PC by the last name Levy. She belongs to the same family which owned or owns the grocery stores chain named "Fiesta" in Houston Texas. The Author was unable to find a lawyer in Texas to file the respective federal law suit and recover his corporate website, but the Author has the US Constitutional right to recite this website in the references herein. Therefore, the Author has multiple legal problems with the State of Texas and the Author is going to resolve said legal problems at the respective Court level in the US. The Author is already involved into the war which has been started by the International Petroleum Corporation SHELL. The Author has approached SHELL offering them for the commercialization the proprietary technology of Gasoline or Diesel fuel manufacture from the air CO₂, not from petroleum which SHELL and other international petroleum corporation's use. SHELL representative met the Author, got his draft of the at that time in publication article on creation Gasoline from the air CO₂ [1,21-24,41,42]. Then SHELL hired two Mexicans to kill Dr. The Author in the car accident, paying the possibly around \$6,000 for this dirty job, which has been done in Houston TEXAS at the US59 down South (9494 Southwest Fwy). The Houston FBI and the Houston Police were contacted by the Author multiple times over his mobile phone however there was no any detailed and thorough Police or the FBI investigation of said attempted murder of the Author since as the Author trusts, both Houston FBI and Houston Police are totally corrupted by the international petroleum corporations. Therefore, any law is not used in the State of Texas to hurt said corporations. Therefore, the Author has to look for the law enforcement outside of the State of Texas, at the National level and he will do that to affect the Texas Governor Abbott for his actions of 2013 and have him resign from his position. Therefore, the Author has conflict of interests with the State of Texas, TEXAS Governor Gregg Abbott, Texas FBI and Texas Police. Since that time more scientific publications of the Author on the Gasoline and Diesel fuel production from the air CO₂ came out [15-49]. The US patents are extremely expensive; therefore, the Author uses instead of patents scientific publications. Publications are as good as the US patents; each the US patent has to claim something better than the Author already did in his scientific publications. The Author working on the Acetogens-biocatalysts has no any competition in the world because of his prior invention, the electroporation / electrofusion Generator, already sold as a sample (with no right for reproduction) to the US corporation BTX, Inc. / Genetronics, Inc. (San-Diego, CA). Said Generator and the invented by the Author genome tailoring technology make him proud to be with no any competition in the whole World.

Mentioning of names Dr. Gak, Dr. Kiriukhin, Dr. Padda in certain publications herein and elsewhere

(Tyurin MV, Padda RS. (2019) Nitrogen gas reducing commercial acetogen biocatalyst suitable for direct and selective reduction of

CO₂ inorganic carbon to organic carbon and atmospheric nitrogen to fuel isobutanol during continuous fermentation of CO₂ + H₂ + N₂ gas blend. International Research Journal of Applied Sciences, Engineering and Technology. V.3, 4, 1 - 10;

Tyurin MV, Padda R, Huang K-X, Wardwell S, Caprette D, Bennett GN (2000) Electrotransformation of *Clostridium acetobutylicum* ATCC 824 using high-voltage radio frequency modulated square pulses // J Appl Microbiol. 88(2):220-227;

Gak E, Tyurin MV, Kiriukhin M (2014) Genome tailoring powered production of isobutanol in continuous CO₂ / H₂ blend fermentation using engineered acetogen biocatalyst. J Ind Microbiol Biotechnol. 41(5):763-781;

Kiriukhin M, Tyurin MV, Gak E (2014) UV-induced mutagenesis in acetogens: resistance to methanol, ethanol, acetone, or n-butanol in recombinants with reduced genomes during continuous CO₂ / H₂ gas blend fermentation. World Journal of Microbiology and Biotechnology. 30(5):1559-1574.;

Berzin V, Kiriukhin M., Tyurin M. (2012) Elimination of acetate production to improve ethanol yield during continuous synthesis gas fermentation by engineered biocatalyst *Clostridium* sp. MTetOH550. Appl Biochem Biotechnol. 167 (2):338-347.;

Berzin V, Tyurin M. (2012). Acetogen biocatalyst *Clostridium* sp. MTetOH871 engineered with our proprietary electrotransformation technology and equipment: continuous synthesis gas fermentation for selective ethanol production. Journal of Biotech Research. 4:54-64;

Berzin V, Kiriukhin M, Tyurin M. (2013) "Curing" of plasmid DNA in acetogen using microwave or applying an electric pulse improves cell growth and metabolite production as compared to the plasmid-harboring strain. Arch. Microbiol. 195(3), 181-188;

Berzin V, Kiriukhin M, Tyurin M. (2013) Selective n-butanol production by *Clostridium* sp. MTButOH1365 during continuous synthesis gas fermentation due to expression of synthetic thiolase, 3-hydroxy butyryl-CoA dehydrogenase, crotonase, butyryl-CoA dehydrogenase, butyraldehyde dehydrogenase and NAD-dependent butanol dehydrogenase. Appl Biochem Biotechnol. 169(3), 950-959.;

Berzin V, Kiriukhin M, Tyurin M (2013) Cre-lox66/lox71-based elimination of phosphotransacetylase or acetaldehyde dehydrogenase shifted carbon flux in acetogen rendering selective overproduction of ethanol or acetate. Appl Biochem Biotechnol. 195(3):181-8.;

Tyurin M, Kiriukhin M, Berzin V. (2012) Electrofusion of untreated cells of the newly isolated acetogen *Clostridium* sp. MT351 with integrated in the chromosome erm(B) or cat leading to the combined presence of these antibiotic resistance genes in the chromosome of the electrofusion products. Journal of Biotech Research. 4:1-12;

Tyurin M, Kiriukhin M. (2013). Expression of amplified synthetic ethanol pathway integrated using Tn7-tool and powered at the expense of eliminated *pta*, *ack*, *spo0A* and *spo0J* during continuous syngas or CO₂ /H₂ blend fermentation. J Appl Microbiol. 114(4):1033-45.;

Berzin V, Kiriukhin M, Tyurin MV (2012) Selective production of Acetone during continuous synthesis gas fermentation by engineered biocatalyst *Clostridium* sp. MAcT113. Letters of Appl Microbiol. 55(2):149-54.

Tyurin MV, Kiriukhin M. (2013). Selective methanol or formate production during continuous CO₂ fermentation by the acetogen biocatalysts engineered via integration of synthetic pathways using Tn7-tool. *World Journal of Microbiology and Biotechnology*. 29 (9)1611-1623.;

Tyurin MV, Kiriukhin M (2013). 2,3-Butanediol production by engineered acetogen biocatalyst during continuous fermentation of syngas or CO₂/H₂ blend. *Appl Biochem Biotechnol*. 170 (6): 1503-1524.;

Kiriukhin M, Tyurin MV, Gak E (2014) UV-induced mutagenesis in acetogens: resistance to methanol, ethanol, acetone, or n-butanol in recombinants with reduced genomes during continuous CO₂ / H₂ gas blend fermentation. *World Journal of Microbiology and Biotechnology*. 30(5):1559-1574.;

Kiriukhin M, Tyurin MV (2013) Mevalonate production by engineered acetogen biocatalyst during continuous fermentation of syngas or CO₂/H₂ blend. *Bioprocess Biosyst Eng*. 2014 Feb;37(2):245-260.;

Kiriukhin M, Tyurin MV (2013) Mevalonate production by engineered acetogen biocatalyst during continuous fermentation of syngas or CO₂/H₂ blend. *Bioprocess Biosyst Eng*. 2014 Feb;37(2):245-260.

Gak E, Tyurin MV, Kiriukhin M (2014) Genome tailoring powered production of isobutanol in continuous CO₂ / H₂ blend fermentation using engineered acetogen biocatalyst. *J Ind Microbiol Biotechnol*. 41(5):763-781; has no practical authorship of said publications meaning since said individuals got paid by the Author significant amounts of cash for doing research for the Author per the topics he ordered them to investigate and provide the detailed reports to him. However their names are included in said specific publications since they have worked on said topics. Name of Vel G. Berzin is also included and has no scientific meaning since Mr. Berzin was a friend of the Author some time back, Mr. Berzin paid his own \$300 for starting the corporation Syngas Biofuels Energy, Inc. for which he did not provide any scientific input including the corporate website <http://syngasbiofuelsenergy.com>. Mr. Berzin has retired from the public life when he became 65 and he keeps his current location at the nursing home very confidential for the Author.

Authors' Contributions

The Author has conducted all the experiments himself. The Author has planned, wrote this original article and edited the written text, including proper placement of the illustrations mentioned which the Author owns. The Author read, edited and approved the final manuscript. The Author is the only owner of all materials disclosed in this original article. The Author has plans to distribute his proprietary products after their approval as needed. The Author might be contacted for the data and materials at PO Box 300230, Houston, TX, 77230, dr.michaelyturin@yahoo.com. The Author contributed to the study conception and design. Material preparation, data collection and analysis were performed by the Author. The first draft of the manuscript was written by the Author. The Author read and approved the final manuscript.

The Author has designed the ideology of this article by himself.

The Author intends to develop the detailed structure and location of his Carbon Negative corporations to be in charge for the establishing and running testing trials of his inventions he plans to commercialize additionally to his major business of manufacture of Carbon Negative fuels and Carbon Negative genetically engineered foods for the Nationwide distribution.

The Author conceived of the presented idea. The Author developed the theory and performed the computations. The Author verified the analytical methods. The Author investigated therapeutic effects of "Mixture" and supervised the findings of this work. The Author discussed the results and contributed to the final manuscript. The Author carried out the experiment. The Author wrote the manuscript. The Author supervised the project. The Author conceived the original idea. The Author supervised the project. The Author developed the theoretical formalism, performed the analytic calculations and performed the numerical simulations. The Author contributed to the final version of the manuscript. The Author supervised the project. The Author conceived and planned the experiments. The Author carried out the experiments. The Author planned and carried out the simulations. The Author contributed to sample preparation. The Author contributed to the interpretation of the results. The Author took the lead in writing the manuscript. The Author provided critical feedback and helped shape the research, analysis and manuscript. The Author designed the model and the computational framework and analyzed the data. The Author carried out the implementation. The Author performed the calculations. The Author wrote the manuscript. The Author conceived the study and were in charge of overall direction and planning. The Author designed and performed the experiments, derived the models and analyzed the data. The Author wrote the manuscript in consultation with other corporate employees, devised the project, the main conceptual ideas and proof outline. The Author worked out almost all of the technical details, and performed the numerical calculations for the suggested experiment. The Author worked out the bound for quantum mechanics. The Author analyzed the data. The Author wrote the paper. The Author designed and directed the project; the Author performed the experiments; the Author analyzed spectra; the Author made the simulations; the Author developed the theoretical framework; the Author wrote the article. The Author performed the measurements. The Author was involved in planning and supervised the work, the Author processed the experimental data, performed the analysis, drafted the manuscript and designed the figures.

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Originality-Significance Statement

The Author has written this original article based on his originality of the business approach and the existing resistance of the International Petroleum corporation to the technology of manufacturing carbon negative fuels to replace their production of fuels originating from petroleum. The reduction of the air CO₂ levels towards the pre-petroleum era of the year 1900 is paramount, since our planet loses fresh water to the outer Space vacuum. NASA has confirmed that in 2010 stating that the Earth has reached the "Point of No Return" to the healthy environmental conditions suitable for life on our planet. The new family of the gas stations selling not only Carbon Negative fuels but also foods for cooking at home and commodity chemicals for the households will save a lot of time for the customers of said new gas stations.

References

1. Tyurin MV. Air CO₂ for the manufacture of the fuels. Diesel fuel Diacetyl alcohol. Irish International Journal of Engineering and Applied Sciences. 2022; 6: 12-46.
2. Tyurin MV. What Will Happen to Earth. Journal of Infrastructure Preservation and Resilience. 2022; 11: 986-992.
3. Tyurin MV. Environmental Problem Solution. Clinical Medicine Insights. 2022; 03: 256-261.
4. Tyurin MV 92007).
5. <https://www.latlong.net/>.
6. <https://www.mcallen.net/>.
7. <https://www.semanticscholar.org/paper/Airglow-%E2%80%94-Introduction-and-ReviewHunten/ee9fefa58d26a12e0907873a399f53a95f473195>.
8. <https://science.nasa.gov/mission/stereo>.
9. <https://www.statista.com/statistics/183505/number-of-vehicles-in-the-united-states-since-1990/#:~:text=Some%20282%20million%20vehicles%20were%20registered%20in%20the,passenger%20cars%2C%20motorcycles%2C%20trucks%2C%20buses%2C%20and%20other%20vehicle>.
10. <https://climate.nasa.gov/400ppmquotes/>.
11. <https://scied.ucar.edu/learning-zone/how-climate-works/carbon-dioxide-absorbs-and-re-emits-infrared-radiation#:~:text=Molecules%20of%20carbon%20dioxide%20%28CO%20%29%20can%20absorb,this%20extra%20energy%20by%20emitting%20another%20infrared%20photon>.
12. Clive J. *Global status of commercialized Biotech/GM crops. ISAAA Briefs 43*. Ithaca: International Service for the Acquisition of Agri-biotech Applications; 2011, 47.
13. Johnson SR. *Quantification of the impacts on US Agriculture of Biotechnology-Derived Crops Planted in 2006*. Washington DC: National Centre for Food and Agricultural Policy; 2008.
14. <https://www.bbc.com/news/technology-62339835>.
15. <https://www.nationalgeographic.com/science/article/elon-musk-spacex-exploring-mars-planets-space-science>.
16. <https://www.livescience.com/how-long-will-it-take-for-humans-to-colonize-another-planet>.
17. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6436082/>.
18. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8002799/>.
19. <https://www.britannica.com/technology/meat-processing/Myoglobin-content>.
20. <https://www.themediterraneanandish.com/beef-shish-kabob-recipe/>.
21. Tyurin MV. New Bioreactor for Carbon Negative Gasoline and Diesel Fuel Replacements. Advance in Environmental Waste Management & Recycling. 2023; 6: 402-409.
22. <https://mygardenspaces.com/6583938-how-to-tame-the-white-mushroom-borovik-how-to-find-it-out-growing-mushrooms-in-the-garden-photo-and-mdash>.
23. Tyurin MV. Russian Patent RU 2-005776-2. Plate-parallel polished electrodes and the process of their manufacture from the titanium-based metal alloy VK-2. 1992.
24. Tyurin MV. Russian Patent RU 2-005776. Generator for electro transformation and electrofusion/electro destruction of various cells: microbial, animal, plant and the process of its manufacture, and the set of plate-parallel polished electrodes and the process of their manufacture from the titanium-based metal alloy VK-2. 1992.
25. Tyurin MV. M. D., Ph.D. The Ph. D. Thesis Abstract: Ph.D. in Microbiology, Molecular Pharmacology and Molecular Biology (Antibiotics & Chemotherapy: Microbiology / Molecular / Cell Biology, and Molecular Pharmacology): The USSR Research Institute for Antibiotics, Moscow, USSR, 1990: "Antibiotic Resistance and Antagonistic Activity of *Lactobacilli*": *Lactobacilli* are the component of normal oral, intestinal and vaginal microflora in humans and animals. *Lactobacilli* are the component of natural colonization resistance rendered in situ due to production of organic acids, esters of organic acids, small amounts of hydrogen peroxide and antimicrobial peptides / polypeptides with high antimicrobial activity at pH below 6.
26. Berzin V, Tyurin M. Acetogen biocatalyst *Clostridium* sp. MTetOH871 engineered with our proprietary electrotransformation technology and equipment: continuous synthesis gas fermentation for selective ethanol production. Journal of Biotech Research. 2012; 4: 54-64.
27. Berzin V, Kiriukhin M, Tyurin M. Selective n-butanol production by *Clostridium* sp. MTButOH1365 during continuous synthesis gas fermentation due to expression of synthetic thiolase, 3-hydroxy butyryl-CoA dehydrogenase, crotonase, butyryl-CoA dehydrogenase, butyraldehyde dehydrogenase and NAD-dependent butanol dehydrogenase. Appl Biochem Biotechnol. 2013; 169: 950-959.
28. Tyurin M, Kiriukhin M, Berzin V. Electrofusion of untreated cells of the newly isolated acetogen *Clostridium* sp. MT351 with integrated in the chromosome erm(B) or cat leading to the combined presence of these antibiotic resistance genes in the chromosome of the electrofusion products. Journal of Biotech Research. 2012; 4: 1-12.
29. Tyurin M, Kiriukhin M. Expression of amplified synthetic ethanol pathway integrated using Tn7-tool and powered at the expense of eliminated *pta*, *ack*, *spo0A* and *spo0J* during continuous syngas or CO₂ /H₂ blend fermentation. J Appl Microbiol. 2013; 114: 1033-1045.
30. Berzin V, Kiriukhin M, Tyurin MV. Selective production of Acetone during continuous synthesis gas fermentation by engineered biocatalyst *Clostridium* sp. MAceT113. Letters of Appl Microbiol. 2012; 55: 149-154.
31. Tyurin MV. Gene replacement and elimination using λRed- and FLPbased tool to re-direct carbon flux in acetogen biocatalyst during continuous CO₂/H₂ blend fermentation. Journal of Industrial Microbiology & Biotechnology. 2013; 40: 749-758.
32. Tyurin MV, Kiriukhin M. (2013). Selective methanol or formate production during continuous CO₂ fermentation by the acetogen biocatalysts engineered via integration of synthetic pathways using Tn7-tool. World Journal of Microbiology and Biotechnology. 29 (9)1611-1623.
33. T. Shubert. Production routes of advanced renewable C1 to C4 alcohols as biofuel components – a review. Biofuels, Bioproducts & Biorefining. 2020; 14: 845–878.
34. <https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide>.
35. Tyurin MV. New type of Gas stations. Submitted to Applied Sciences; 2024.
36. <https://www.globalindustrial.com/p/medi-cut-disposable-sterile-scalpels-size-20-pack-of-10?adclid=a73047052aa514c509592f3b3c7c632b&msclid=a73047052aa514c509592f3b3c7c632b>.
37. Tyurin MV. Russian Patent RU 2-005776-2. Plate-parallel polished electrodes and the process of their manufacture from the titanium-based metal alloy VK-2. 1992.