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Carbon Negative Genetically Engineered Foods for Humankind

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Abstract

To cope with the anticipated in the next 10 to 25 years Global starvation of Humankind due to the anticipated shortage of the fresh water on Earth we have developed the expression system to express recombinant genes of various kinds of meat to manufacture Carbon Negative genetically engineered meats as foods for the Humankind. When the author had his Ph.D.-studentship at the USSR Research Institute for Antibiotics (Moscow, the Russian Federation) he had enjoyed the mushrooms shampinioni grown using mycelium of antibiotics producing streptomyces grown at the same University. Keeping that positive experience in his mind the author has suggested that the mushrooms of the family Borovik might be grown on the used cell mass of the Acetogen biocatalysts used to manufacture the carbon negative fuels he has manufactured. Based on that the tubular mushrooms Borovik has to be totally carbon negative the author has proposed the system based on the white tubular mushrooms known as Borovik. As the results section shows 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. Said genetically engineered foods will be available at the new type of the gas stations to save plenty of time to our valuable customers. Said genetically engineered meats have to be approved for the mass consumption by the respective governmental authorities.

Keywords: Global humankind starvation; Recombinant genes; Carbon negative recombinant foods; Borovik

Introduction

As we have described earlier the outer pace vacuum sucks the Earth's fresh water vapors and fresh water ice crystals directly from the planet Earth air [1-3]. We do anticipate the shortness of the fresh water in the next 1 to 25 years [4]. Said shortness means the shortness of the crops and livestock manufacture since the fresh water composing 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 is the natural reserve of the fresh water coming from melting ice/snow and rains [4]. Speaking of the fresh water loss form 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 [6] near the border with Mexico the farmers collect already three harvests of corn annually. That corresponds to the fresh water loss (Hunten D. 1971 Airglow - Introduction and Review. Environmental Science [7]), then an oxygen loss rate of ~10^{25} S^{-1} corresponds to ~300 g S^{-1} of the fresh water loss. Over the age of the solar system (4.5 billion years which is approximately ~1.4 × 10^{17} S) this loss rate gives 4.2 × 10^{19} g of fresh water lost to the outer space vacuum. The current the fresh water loss figure is equivalent to about ~25,920 liters per day, or 9,467 m^3 per year. And the reference of that figure seems 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 km^3 of the fresh water to the outer space vacuum which is equivalent to about 12 cm of ocean/sea level decrease. However, that's a straightforward extrapolation of the current rate, because they acknowledge that they don't know how to model how Earth's magnetosphere would have behaved in the past when the Sun was weaker. Although, for a weaker Sun it would be reasonable expect smaller losses. If we assume the Earth oxygen loss to the outer space vacuum corresponds to the fresh water vapors/fresh water ice crystals (there is the layer of the air at the altitude of about 15 miles above Earth surface with

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the temperature of about - 60°C since the outer Space vacuum has its temperature of about - 293°C [4] the fresh water loss then an Earth's oxygen loss rate of ~10^{25} S^{-1} corresponds to ~300 g S^{-1} of the fresh water loss to the outer space vacuum. Over the age of the solar system (4.5 billion years which is approximately ~1.4×10^{17} S) this the fresh water loss rate to the outer space vacuum gives 4.2×10^{19} g of the fresh water loss to the outer space vacuum [9].

Outlined herein problem of the air CO_2 production by the cars, aircrafts, ships, 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 self-maintaining ecological conditions on 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 [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 outer Space vacuum. Most critics of our point of view that the Earth loses fresh water to the outer 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 then falling back to Earth surface due to the gravity force. This is not true since said people never lived in Europe at about 40 to 50 years from now at the ear of 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. So said housewives had long ropes in their backyards to perform drying of the washed linen and let the linen dry at negative temperatures centigrade. Said linen dried perfectly well on said ropes and that was at 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 protons convey their energy to molecules of the CO_2 causing their vibration. Said molecular vibration produces heat transferred directly to the environment where said CO_2 molecules reside. Due to the 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]. Therefore, the problem of the global warming and the shortness of the fresh water on Earth depends on the air CO_2 levels now often exceeding locally 450 ppm to 500 ppm.

So, we came close to support the loss of the fresh water vapors to the outer space vacuum. Shortness of the fresh water means the shortness of crops and livestock production. That literally means the shortness of food as we have projected happening in the next 10 to 25 years. 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 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 that alters the genetic machinery of such living organisms as 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'. The transgenic crops grown commercially in field are herbicide and insecticide resistant 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 that may alleviate chronic malnutrition in Asian countries and a variety of plants that are able to survive 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 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 some 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 on gene manipulation what are the risks of "tampering with Mother Nature", etc. [11].

Scientists first discovered in 1946 that DNA can be transferred between organisms [12]. There are several mechanisms for the DNA transfer and that these 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 'Flavr 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. In 1995, few transgenic crops received marketing approval. This includes canola with modified 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 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. GM products which are currently in the 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.

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 livestock and crops production meaning Global starvation for

everyone in the next 10 to 25 years. During the time we have to be in the war with the international petroleum corporations started by SHELL from the attempted murder of the author, the time we might think over now might be as long as might be 25 to 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.

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 to 25 years due to the increased amount of the air CO_2 (effect of the international petroleum corporations) [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 [16-21].

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 experience 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 been totally carbon negative since the recombinant organisms' tubular mushrooms of the sort Borovik will grow on our manufacture waste the carbon negative biomass of our biocatalysts we plan to use to manufacture our carbon negative fuels. The creation and maintenance of the mushrooms has to be performed under the strict sterile conditions we have established at our corporation site from this purpose to avoid any sort of contamination of the genetically engineered carbon negative foods produced by tubular mushrooms of the sort Borovik to which we have inserted the recombinant proteins formed from the bovine myoglobin and lamb (sheep *Ovis aries*) myostatin. The sequences of some recombinant proteins are given below.

Recombinant bovine myoglobin (NCIB deposition #2767414)

>1 aaaaattaca agaatata gtgtctacct aaggtgaaaa cacataggag attttgtatcg

61 gtgaaatatg gacattctgg ctttcgggct tgtctgtgcc tcccgagccg gtaatataatg

121 tcaacctaag gtgaaaacat attggaggtg aaatatggag attccggctt tcgggcttgt

181 ctgtgctgcg cgagccgatt tgtatcggct atcacatcgg tacattgtat ccgccggtat

241 acttacattc tggtaattac gtatataatg acctaaagtg aaaacacatg tagaaggtga

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 gtcaaaaaca attggaggtc

601 attgcaggtg aaatatggag atttcggtttt cgggcttatg tgcgcctgcc

661 gaccgattt gtatcgggcta atagcatcgg tgacattgta tattcactgg tgacacttga

721 atgccatagc aattacaagt atatagtgtc taactaaggt gaaaacacat tggaggtaa

781 atatgagatg tccggctttc gggcttgtct gtgcttcccg agccgattgg tatcggcatt

841 accatcggtt acatatatat tcacggtag catttgcatt catttgcatc aatggtaatta

901 caagtatat tgtctaacta gtgtctaact ggtgaaaaca ggtgaaaaca attggaggtg

961 gattggagga atatggacat tccggctttcg ggcttgtctg gcctgccgag ccgatttatgt

1021 cggctcatag catcggtgac attgtattatt accggtgaca cttgcatcca gggatttatgt

1081 cttgcaatgc cttgcaatca tagcacttca agtttataag tcttacatag gggaaaacaa

1141 tgaaaacaca aggaggtaac atatggagat tcagctttcg gcttatcgtg gcttatctgtg

1201 gtctatctgg cctgccgagc cgatttgtatc agctattacc atcatgacat tgtatatttca

1261 tattcacccg ggtgacatttg cattccatag aattacaagt atataaatgtc tacctaaggt

1321 tattcacccg ggtgacatttg cattccatag aattacaagt atataaatgtc tacctaaggt

1381 gagccgattg tgtatcggcc taatagcatt cggtgacat ttgtatattc cactggtgag

1441 cacttgaatt gccatagcaa ttacaagtat ataatgtgta aacaaggtga aaacatagga

1501 gacgtgaaaa tatggcagtt tcggcattcg ggcttatctg tgcctgctgg gccgattggt

1561 atcggctatt accatcggtt acatttatat ttcactggta gcatttggag tcaatgataa

1621 ttaacagtat atagtgtcta cctaggtgac aaacacatac taggaggtgc aaatatggac

1681 tttgcggctt tccagcttgt ctgtgtctgc cgagctgatt aatgtcagct catagcatca

1741 gtgacattgt atatcagatt gtaacatagc aattacaagt gtataatgtc tacctaatgt

1801 gaaaacacat aggagatgaa atatggagat ttcggttttc gggcttctat gtgcatgccg

1861 agccgattgg tatcggctat caccatcggt acattatatt tcactggtag cattttgcat

1921 cattgcattt caatggtaat tacaagtata taagtcaact ctaaggtgac aaacacatag

1981 gaggtgaaac tatggacatt ccggctttcg ggcttgtgtg tgcctgccag ccgatttatgt

2041 ccgatttatg cggctcatag catcggtgat attgtacatt accggtaaca ctaataccat

2101 ggttacattg ggttacattg atatccgcct cattccaagt cacaatgtca cttatggtgaa

2161 aacacatagg ggtgaaatag gagattctgg ttgaggcttg tctgtgcctc ccgtaatacc

1321 atcggttaca ttgtatatcc gccggtatca cttacattca tcgtaattac aagtatataa

1381 tgtctaccta aagtgaaaac acatagaagg tgaaatatgg agattcaggc ttgtctgtgc

1441 ctgccgagcc gatttatgtc ggctcatagc atcggagaca ttgtatattc accggtaaga

1501 cttgcattca tggtaattac aagtatataa tgtccaccaa aaagttaaac cacataggag

1561 atgaaattgc aggtttcggc attgaggctg tgtgtgcctg ccgagccgag ttgagccgag

1621 ctatcaccat tggttacatt atatattcac cagtagcatt tgcattcaat ggtaattaca

1681 agtatatagt gtctaactat ggtgaaaac acataggagc gtgaaatgtg gacattccgg

1741 gccccagctt tccagcttgt ctgtgccttc caagcggatt tatgtcattt atagcatcgg

1801 tgacattgta attcaccggt aacacttgca ttccatagca atcactggca caagtacaca

1861 atgtccatcc aaggtgaaaa cacgcaggag atgaaatatg gagattctgg cttttgggct

1921 tgtctgtgcc tgctgagccc attagcgtcg gtccatacag tcagtgacat tgtatattca

1981 ccgatacccg agctgtcggc agacaggacg acccagtacag tcgcccttgt tctttttct

2041 tcaaacccca gctgtcggag acaggacacc cagtcagtcc ggttggtgct gaatgcctgg

2101 gggaaggtgg aggctgatgt cgccggccat gggcaggagg tcctcatcag gtaaaaaggaa

2161 gaaatcccac tgcccctgtc ctccttcctc aaggtcaaga atgcttgcct gcaaggtgga

2221 acgtttgccc cggggttgac cagttggctg ctgtgttaat taactttgtt aaaccccta

2281 cttggttctc ctgtgttttta tgtatcagag gttggaatcag gaaagcagat gaaagcagat

2341 ccatttcaca cttgtgctag cagctgggag gagctttgat gatcaaatcc ttgatgctta

2401 gaccccacca gaaggaatcc taaaattata gctagaatta acaaagaaagg tctgagaggt

2461 ctttctcacc tcacctaatg gatgaggaca caaaggacct aagaagggaa ggatgacccc

2521 agagtcacaa gttcattaaa gtctgtaaaa tgccaaggat taagacacgg ccttcaacat

2581 gacatatgtg gttctacacc tggctctgcc accgagctgt ttgtgtgacc ttgggaaag

2641 cacataactt ctctgagcct cagtttcttc tcctataaaa tgggaggggg ggggggaatc

2701 ctaatatcta cattatacag tagaagtaag aattaaataa aatgctgcag ccaaggggcc

2761 cagcataatt cctggcatag agtgagttcc aaaagatgtc agtaactctt ggagataag

2821 cttagaattg ggccctttaa agtataataa taataatagt aattattatt attttagctg

2881 tgttgggtct ttgttgcttt ctctagtttt ggtgacagg ggctgccttt cattgccatcg

2941 catgggcttc tcatgccgt ggtttctcttt gctggggaac acaggctcca gggtgcagga

3001 aggcaggctc cgtagttgcg gctctagggc tctagcgt gggctcagta gttgcggggc

3061 atgggcttag ttgctcggcg gtatatatggaa tctttccaga tcagggatcc aacccatgtc

3181 tcctgcattg gctggcagat tcttatccat tgtgccacca cagaagtccc taatcttgac

3241 ttttgatgtt gggtatgtct tttgaaggct cagaataatc tccacgcaca ttcatcttgc

3301 cttctttagc aagggattcc tgaataaaga aacaccctccc ccgccccccca ccccggcaa

3361 aattctaagt tttgtaacag agggtggctg tggttcagaa atagaacctc atgttcattg

3421 ccttcttcgc caagtggtga tagactcccc tctcctcctg gtcctttctc atgctctgggg

3481 cagcgtgagt caaaagcgta catcgaccatt tctgcgcctg gtaggaggtg

3541 ggccctggtt gccatgagtg aaggattgt cctttacact ttatagatga atttctcct

3601 ctttatgagt cagagcaggt ttttctctcc catttagaca ccctttcagc ctcccccagg

3661 cttcacccat ttccagctcc catgtctggg agaaatgaccc agacataagc tataagctct

3721 attatctgga gtttcagcct tagtggccca tgccaaaaac acatgagaaa ggatggtcaa

3781 gttccctgtt gaatctaact ggcatcttgg ggttttcctt tgtgtctttt tcctcttatg

3841 cctctgtcag ttggctactg gcactgcaag aggtccatt tggttggaca gaagactctc

3901 caaagtggac atcaactcct cagctctccc tttgctgtgt gaccttggac aagtcactaa

3961 tcctctctgg gtcccatttc ctatttgtttg aatggaggga ttaccttcat ggtctctgag

4021 atccggaggc agggtagctg agtgggagac cagtttgcca aaaaggagtc ttttccaggt

4081 gatcggaggc agggtagctg agtgggagac caggggggca aaaaggagtc aaaaggagtc

4141 ttttccaggt gatcttgggg gctgtcagcc ctaagtcagt gacttggagg tctggaagga

4201 gacttgggg atccgtgcca gggcaagac gtcatgctgg agactgccga cccctggcag

4261 gcccagaca gcctggatgcc ccatcacatc ttaagctgaa gacatgcaga aaccacgcccg

4321 acgcttctg ccctcttggt atttgggggc cagggaccgg gagaagggga tgctgacttc

4381 cagggtgccc tgtaggaaa tgacctttg attctgtttc agatgccgaa cctgggtttt

4441 cttacttttct tgaaaaggtc atttctccca ctcctcggt tatgacagat agcaaattct

4501 gttcggtctg ttaatagaaa ctctgagggc ttcactgcaa gcatgtgatc attatgtcct

4561 agaacataat agctgaaggc tcagttgcag agtctggctc caggaaacgg gggtttttag

4621 gaggcggag gcagctaag agggctttgg gcccctggcc ttccttcttt tcccccagat

4681 ctttaggggc tacggactgg gtcggacttg ttccgggcag tgaggccttg attcggctgt

4741 gaagtcactg ctggtgggcc agacagaacc caagattccc aatcctagtg atgacgatgg

4801 tggtggtgag gatggtgatg atggagctgg tgaggatgag atggagctgg tgaggatgag

4861 atggactggc tgagatgag tgaggatgag atggagctg atggagctgg tgaggatgat

4921 gggggtgatg gtggtgatgg tgatcgtggc ctagagcttt tgatgaggac agcaaaatg

4981 taaaatgtt acacactgat tgctaggccc tgtgttacgt gttcatgtat attaactcat

5041 ttcagcctca cagtaacctc atgaggtgga cgttattata atcccccacgt ttaacagaga

5101 agttaagtga cttgcctgaa gtcccaaagc tggagttcaa gtccagcagc ctggatcagc

5161 gttgccactc ctgaacccta taccacgtcg tcccgccagtc aatttatgca ggcctgggag

5221 cgccttctat ctttcatgtg ggtgtctggt tgggtctcag ctcagagac agctgggaac

5281 tggcctcctt tcccgctgac ctgtaataaa ctaggcaggt tgacgatagg attcaagatg

5341 aaagcacaag gcaagcgcgt gcttctgaaa ccctggaaga aaagccccac ccaccccatgt

5401 ctacagggtg agggccttcc agctgctcat tttctgagtt gccactgtca caagttccca

5461 ggtaggacct tctgtggctt cccagggact cccagctgcc ggcttggggg cagtgagggg

5521 aggcagctgt agaaaaggaag atctgatggg cattcagaag ccaggttttt ctgcagtgtt

5581 aaagtaatc cggggttccg ctctctgctg gacaagtgcg aaaagtgtag gggtgaggtc

5641 cgggttggag gggtcaagcc ttaggagtgt acttttcaa cattcacagc agaggcagat

5701 ctggggccag aactcagctt catgattctc agtgcttagt ctcttcccca gacatccgg

5761 gggtctccca agatgtctca gaccctggt gaccttcacc tgtgggttct gggtcttgca

5821 tctgtcaggc aggagttcaa ggatcattgt cgccagataa taatagtcag gatctcaggc

5881 accctgaggt gaaaagtgct ggagatgagc tgtcagtgatg tagaagggtt ggccgggcc

5941 ccagctgagg tagtgacatt gagcatggct gtgggcagca ctgggtgttc tgggaaggca

6001 ggagggacat gcccttgggg gaaggggcg ctccctgtct gtgcgttatg cccgtgtgtg

6061 tgtgtgtgtg tgtgcatgag cttacgtgtg attatgggta tgtgccgtga gacacttgtg

6121 cacacactggag tgtgtctgca gttaggttta agggtgttct agagcagagg aaatcacaaa

6181 agagaaagct ttcaaggaac tgaagccatc agacaagaagg agggaaagtc cagcagagag

6241 ggtcacctctg gcagaggttt ccgggtgcaa cacaaaagag agacatgagg ttatggaacc

6301 atttgtgtgt gtggtcttcc ctttgcccat gagtgaaatg ggaaaaatct ctccctcctc

6361 cccgtcggta tgactcccttt taacgatccc caccttttctg cagaatgaaa gactgaagtc

6421 tgagcaacat ggtgactcct tggatcactg cggccagctc actgggtccc tgggaagagt

6481 gggggcctgg tctttggcag atggctccca ttagagattc tcaccgtcag tactgggaaa

6541 aacagggagg cacagcaaaa taagcaagcg ctttctgaagc ctgagagctg ttcagactag

6601 aaaagctgtc acatggagta gtgagcctcc tgaagctgga agtatttaat gcggccaaag

6661 gatgatcctc gggcaggaag ctgcagagat ggtcccctgc atggactaca ttttgagtca

6721 ctcagacctg atttcagtct ggctcatctg cagcccgct atgtgagtta ttgagctagg

6781 acctcatact ccttagcctc tgttccctca tatataaaat ggggataata cat caccaaa

6841 gggaagtgca agtggagacg ctacgtgggt cctggcgcac agcacagact ccacaaatcc

6901 tttagccccc gtgctctcct ctgctccacg gtgacacgtc tagtcatctt tgctccccaa

6961 agcttagagc aaatgggggc gaggcaggt accatgcaga tgttttcctt ccagcctttc

7021 agagtaacaa tgaagcagat gatgatgcag aaaatagtaa tagcaagcat ttataggaca

7081 cttcctgtgt gacccagc ctataccatc tcattcaatt taatcctcac acttctatag

7141 ggagggacct gttatcccta ttccttggat ggggagactg aagcacagag aggtgaagcg

7201 aattgcacag gtcacacagc tagcaactgg gagggtgtgg atttgaactt gagtctggcc

7261 acctcctgac ccctgtgtct aactcaagcc ctccttgtac ccctcaggct cttcacaggt

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14961 aggcacacat aagcccgaaa accaaaatct ccatatttca cctccaatat ggtttcacct

15021 taggtagaca ttatatactt gtaattgcta tggaatgcaa aggtcagccg gtgaatatac

15081 aatgtcaccg atgctatgag ccgacataaa aa.

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

1 caaaagggaa gcagtaagag caaggaaaaa gattgtattg attttaaaac catgcaaaac

61 accaaatctt tgtttatatt tacctattta tgctgcttgt tgctggccca gtggatctga

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361 cttggaagac gatgactacc acgttacgac ggaaacggtc attaccatgc ccacggagtg

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541 ccaggcagaa aaagagctct tagattgttc agatccacat cttcctgtgc agtaacattc

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6001 acttttggaa ggagcttttc cagtggctgg acaatgtgca gccctgaagg tgcgtcttga

6061 aaggaagcaa cctgagtagt gggtagctgg actgttattt actgctgagg caacagcttg

6121 gtcagtgcca aacaggaaca ctgtgctgac attgacatgg agcagaagga aaatttggga

6181 agttattcaa tcttgtgatt acaaaggtta ccatttcttc ctattctcaa ttaaggtctg

6241 tgcaaagaca ccgtcagaag gaagcatgtg gctcagagat ctgcccaatc tactattctg

6301 gccacaaggc tctctcagca gtccacatat cagctgtccc ttcaaagtca gtgcagcgaa

6361 tccagccatc tgtgcaagta ggagctgtga agtggaagta acctgcactg gcaggtgaaa

6421 cattcatttc taccaccact ccaccaaact ctaattagag agattccctg tcctccttgg

6481 tctggaggag aagccttccc tgatacccag aaaatcctag taaaatacct tttgaatagt

6541 gggaatttca gacagactca caaaagggaa tccgacactg cttggatcct gccctttcaa

6601 tgtggttttt ttgttgttgt tgttaatttc tgtttgagtt ctttccttct ctatagaaga

6661 actcccaaaa ggaaaaacaa aaacctctta ctgtagtatc aaggaaaaca acagctaacg

6721 tagaaaccag ggatcctcat gacttctgaa actttctctt agcagttaat aaaaaatgat

6781 gctagcactg agacagtgat gatttcagga agagatactc agaaattaac actctgtgga

6841 gaagcagcag ggaaatgctg gtcttcggaa tgaagagaaa taatccctga gcagggagca

6901 aacgtagcag acttggatga ggaataagtt cccagaaggg tagaaagttc agaaatgctt

6961 gcaaatgttt tttgagaata ctaatttgat atgtttgtgt cagagacatc tatctgcatg

7021 ttttcctcaa attacatacg cctaccttgt taatacttcc gattcctttt cctcttctct

7081 cagaacccat ttttagaggt cagagttaca gacacaccga aacggtcccg cagagatttt

7141 ggccttgact gtgatgagca ctcaacggaa tcccgatgtt gtcgctaccc gctgacagtg

7201 gatttcgaag cttttggatg ggactggatt atagcaccta aaagatacaa agccaattac

7261 tgctccggag aatgcgaatt tgtgtttcta cagaaatacc cgcacactca cctggtacac

7321 caagcaaatc ccagaggctc agcaggccct tgctgcacac ccaccaagat gtcccctata

7381 aacatgctgt atttcaatgg aaaagaacaa ataatatatg gaaagatacc agccatggtt

7441 gtagatcgtt gcgggtgctc atgaaggctg tcgtgagatc caccattcga taaattgtgg

7501 aagccaccaa aaaaaaaagc tatatcccct catccatctt tgaaactgtg aaattacgta

7561 cgctaggcat tgccaacatc catatactgt acaactgtac agaccacata tatcacaaca

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7681 cggacaaaga agctacaatc aaaatcaccg gatttaacaa atgggtttct tacactgtga

7741 gggaatcaat attcagtcat tcagacacaa atttatatgc agttttcaac atatgttggt

7801 aatcaaaagt aagctccttc tcctctgagg acagaaggag cgggctatta aatcaacttc

7861 ttcacagcta cacttaatat tgtatttaca gcaaaatata tactggtaac gtatacacca

7921 ctacacatta ccaccagaat catccttgaa cacttgaata tatagtgcag agttatgata

7981 agatgaaatt ccacgtaaat ggacaaatcc tgaagttagg gatggtatag tgtatttagc

8041 gtgtttccat tccttttttt cgttagtatg ttagtaatca atggcaatgg tgctacgtaa

8101 gcaggctgag taaatagaaa gatagttatc taagtgaaag aatttagagt aataatgaat

8161 ttgccctatc ctcaggtaca ctattcaaca ttcacaagaa aaggatttttt tttaaacaaa

8221 aggtgaatag ttttctaaac gtagtaaaac aaaaggcagc acggaagtct gatgttcaaa

8281 ccataatccc atatcgtaat ctgcctttgc aacgttaccg tttgcactat gataagccaa

8341 tgcaaatagt tggttgctac agaaattgtt aaaaaaccac tttgatataa ctgacttgtg

8401 taatatgtat gcatcaatat tttgtaaata aatgtttatt ttttaatctc tgttcgtata

8461 cattcattac aaaaaaaaag tgatgttaac ctgtacttta gtttaataaa caaaacccag

8521 tattctcttc ataacataat ttcctggttt ttaacagtaa tatgaaagaa cagtgcaaca

8581 gagtaaacca caggtaggaa gcagtaagag caaggaaaaa gattgtattg attttaaaac

8641 catgcaaaaa ctgcaaatct ttgtttatat ttacctattt atgctgcttg ttgctggccc

8701 agtggatctg aatgagaacg cgagcagaag gaaaatgtgg aaaaaaaggg gctgtgtaat

8761 gcatgcttgt ggagacaaaa caataaatcc tcaagactag aagccataaa aatccaaatc

8821 ctcagtaagc ttcgcctgga aacagctcct aacatcagca aagatgctat aagacaactt

8861 ttgcccaagg ctcctccact ccgggaactg attgatcagt acgatgtcca gagagatgac

8981 agcagcgacg gctccttgga agacgatgac taccacgtta cgacggaaac ggtcattacc

9041 atgcccacgg agtgtgagta gttctgctag ggcagagcaa cgacaaaaag ggggctacgt

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 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 $FeSO_4 \times 7\ H_2O$ 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: (Table 1).

A number of factors influence the myoglobin content of skeletal muscles. Muscles are a mixture of two different types of muscle fiber, fast-twitch and slow-twitch, which vary in proportions between muscles. Fast-twitch fibers have a low myoglobin content and are therefore also called white fibers. They are dependent on anaerobic glycolysis for 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 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

Figure 1: Real raw meat at the butcher store.

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 real time cooking to make the soups and to prepare the shish kabobs using the recommended in that reference process [20].

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 has led us to the desire to publish more of separate articles like the this one describing our experiences with other genetically engineered met 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 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 to 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 not have any idea on that kind of foods the customers would like to get at our new type of gas stations shown in Figure 2.

Table 1: Fermentation of Acetogen biocatalysts LMM.

$NaHCO_3$	3.5
KH_2PO_4	2.0
NaCl	0.4
NH_4Cl	0.4
$MgCl_2 \times 6H_2O$	0.33
$CaCl_2 \times 2\ H_2O$	0.05
Resazurin	0.001
Yeast extract	2.0
Casein tryptone	2.0
Meat Extract	4.0
Nicotinic acid	0.025
Cyanocobalamin	0.025
Para-aminobenzoic acid	0.025
Ca D-pantothenate	0.025
Thiamine × 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
$MnSO_4 \times H_2O$	0.0025
$FeSO_4 \times 7\ H_2O$	0.0015
$FeCl_3$	0.01
$Co(NO_3)_2 \times 6H_2O$	0.0005
ZnCl2	0.0005
$NiCl_2 \times 6H_2O$	0.00025
$CuSO_4 \times 5H_2O$	0.0005
$AlK(SO_4)_2 \times 12\ H_2O$	0.0005
$H3BO_3$	0.0005
$Na_2MoO_4 \times 2\ H_2O$	0.0005
Distilled water to the volume of	1 Liter
	pH 6.5

Another topic comes out from our description of the genetically engineered eats 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.

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

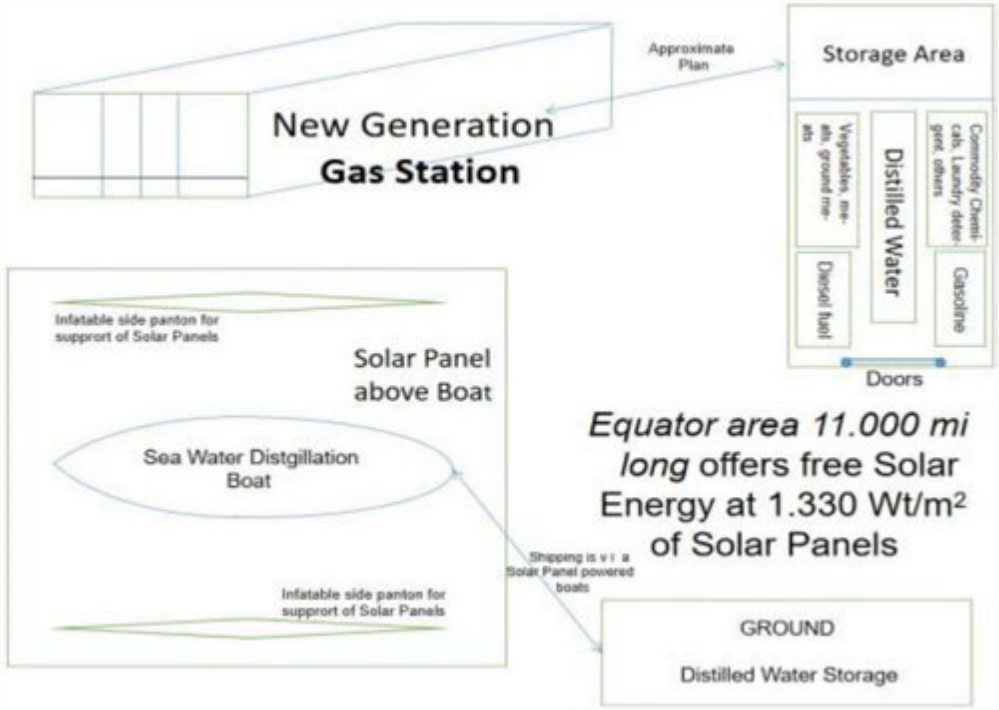

Figure 2: Our new type of gas stations selling not only the Carbon Negative fuels but also the distilled water we will produce in abundance from the sea water using Equator areas of Earth for the best insulation of our solar panels batteries combined with the alkaline batteries we plan to purchase at 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.

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.

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