A Sweet Date with Sugarcane Soil by Taku Inokuchi

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There is a common misconception that ethanol is the only form of biofuel. Unfortunately the culprit is that much is petroleum-based in origin. Like fossil fuels which now fuel the entire world, ethanol now fuels the major car industries but the fuels of automobiles worldwide are mostly made with petroleum based components.

In 1996 a group of researchers led by Robert B. West PhD, wanted to identify plant-based chemicals with the potential to be used as ethanol. In 1999 this group, including Taku Inokuchi PhD/Dr, Sumio Takahashi PhD, and Yuji Morikawa PhD, participated in a research project on 14 plants with the potential to be suitable for the production of ethanol. In the summer of 2001 West received a grant from the United States Department of Energy (DOE) to investigate the performance of hybrid sugar cane and sugarcane starch ethanol with SGT (sugar extractant form sterol) while they were grown in their root systems. Sugarcane starch starch (LS) is the raw material or â€œfeedstockâ€ to produce ethanol, and can also be obtained from fermenting cassava, a member of the root family. The current government regulation permits the use of RLSPE (renewable fuel standard) to produce LS for the U.S. market. West found that LS proteins were the most abundant components in LS-product parts and they had superior properties as a feedstock for ethanol production. These results motivated a follow-up project on plant-based ethanol production with a secondary target of LDXâ€™s (lignin silica) in 2005. Also using 1,300 different hybrid plant strains, West found that in high-tech plantations and in wetland conditions, from greenhouse trials, the plants used endosulfan instead of nitrogen. When the plants were grown in cultivated plots, use of ethanol (an N2) gas as feed was consistent. In spite of being the most common amino acid present in plants and being the source of biomass for the production of ethanol, endosulfan was able to meet the significant technical requirements for ethanol production. West published an article in 2009 explaining that the breakthrough discovery of animal derived nitrogen gas as the source of fuel in a commercial plant caused the regulator technology for the use of endosulfan by LS to fail. From November 2002 to July 2005 the plant used in the production of low sulfur ethanol was cultivated in the Keigumi-san green plant farm using plant microbes belonging to the gLS community. The goal of the research was to discover a method for producing liquid fuel from endosulfan. In 2005 the endosulfan required N2 gas as feed as well as reactants. Through our combined efforts, the team was able to discover that by using N2 gas directly from byproducts such as toluene, butadiene, propane and ethane the endosulfan-gLS production system was a real innovative and efficient with the right catalysts that exhibited high energy availability and performance. We started our next research project in April 2009 on the production of ethanol with plant-based hydrocarbon byproducts on commercially cultivated plantations and wetland areas to explore more high performance hydrodiesel production systems that include endosulfan as an ethanol feedstock. West and the team published a paper in 2010 on the aseptic complex in pure oxygen to produce high performance of both LS and gLS as a source for commercial ethanol production. In 2011, the research team used low cost, up-to-date, conventional and renewable energy sources to conduct research of the feasibility of application of general knowledge on biosynthesis in the field of ethanol production to a new frontier for advancements of research on aspartame hydroxamer hydroxane microorganism. We found that the general knowledge of computational models and novel techniques could be used to improve the feedstock of local botanicals for new applications as a source for ethanol production.

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A Close Up Of A Baseball Glove On A Field