

# Tequila plant holds promise as arid biofuel source

Lucina Melesio Friedman, 7 March 2011

The plant could help usher in an energy revolution, some experts say

[MEXICO CITY] A plant more commonly known for its role in the production of the alcoholic drink tequila has been overlooked as a source of biofuel that would not compete with food crops, say experts.

Agave plants can sustain high yields while enduring extreme temperatures, droughts and CO<sub>2</sub> increases, with little need for irrigation, according to a series of papers in a special issue of *Global Change Biology Bioenergy* published last month (February). With around 20 per cent of the world semi-arid, and some 200 agave species growing worldwide, the plant could help usher in an energy revolution, experts say.

Field trials of the [biofuel](#) potential of some common Mexican varieties have begun in Australia and "there are vast areas of abandoned agave plantations in Africa [once used for sisal fibre production, but abandoned after synthetic fibre production came along] that might be re-established [for biofuel use] without incurring economic and environmental costs of indirect land use change", according to one of the papers. Two varieties — *Agave mapisaga* and *Agave salmiana* — produce, under intensive management, yields that far exceed corn, soybean, sorghum, and wheat productivities; and even without irrigation they still maintain high yields, argues another paper.

Arturo Velez, a former coordinator at the National Confederation of Forestry Producers and head of the Agave Project, an initiative to scale up agave biofuel production in Mexico, told *SciDev.Net* that some varieties produce twice the dry biomass per hectare of hybrid poplar, three times the sugar of sugarcane, and four times more cellulose than eucalyptus, and capture five times more CO<sub>2</sub> than the most productive ecosystem. "Mexico has 80 million hectares of arid and semiarid areas with no productive potential in which 5,600 million tons of dry biomass could be obtained from agave," he said. This would be enough to meet the United States' transport fuel needs.

Different agave species are already widely used in Mexico for production of tequila and bacanora drinks and henequen fibre, but in some cases up to 80 per cent of the plant's biomass is being thrown away. "We would be putting to good use the wastes of industries that are already running," Felipe Barahona, researcher at the Yucatan Center for Scientific Research, Mexico, and co-author of one of the articles, told *SciDev.Net*. "Agave can be used because it is already being produced, whereas to obtain oil from jatropha or ethanol from sugarcane these would have to be farmed."

Martín Esqueda, a researcher at the Feeding and Development Research Centre in Mexico, working with the country's University of Sonora on a project seeking bioenergy in arid lands, warned that agave should be sustainably managed to avoid over-exploitation of the wild populations. This has happened with *angustifolia* species, which is now endangered because of unsustainable use to produce bacanora, he said.

SOURCE: <http://www.scidev.net/en/news/tequila-plant-holds-promise-as-arid-biofuel-source.html>