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Rocking the Boat: J. Craig Venter's Microbial Collecting Expedition Under Fire in Latin America

Civil society organizations (CSOs) and peoples' movements convening at the first Americas Social Forum in Quito, Ecuador, July 25-30, are protesting J. Craig Venter's US-government funded ocean expedition to collect and sequence microbial diversity from around the globe. Exotic microbes are the raw materials for creating new energy sources and even new life forms.

"Venter's microbe-hunting expedition raises serious unanswered questions about sovereignty over genetic resources and resource privatization through patenting," says Silvia Ribeiro of ETC Group who will attend the Social Forum. "Will the world's microbes being collected by Venter become the raw ingredients for his research on the creation of new life forms? What role will Venter's functionalized life forms play in nanobiotechnology, where scientists are merging living and non-living materials to create human-directed machines? The worst-case scenario is that these new life forms will form the templates for deadly bioweapons."

Operating from Venter's 90-ft. yacht, the Sorcerer II, researchers collect samples approximately every 200 miles.¹ Researchers have already collected marine and soil samples in Bermuda, Mexico, Costa Rica, Panama, Chile and Ecuador's famous Galapagos Islands – among other sites. The Sorcerer II left the Galapagos in March for French Polynesia and will continue circumnavigating the globe by way of the South Pacific's New Caledonia, Papua New Guinea, Australia's Great Barrier Reef, across the Indian Ocean to Madagascar, around South Africa's Cape of Good Hope and then up to the mouth of the Amazon River. The voyage will end with a trek through the Caribbean and back to the eastern coast of the US.

The flamboyant biologist, J. Craig Venter, is no stranger to controversy. Venter is best known for his commercial quest to sequence the human genome in just three years, his audacious patents on human gene sequences, and, more recently, his goal to construct a novel, artificial life form in the laboratory – an undertaking he abandoned in 1999 because of potential abuses by bioterrorists.² Since 2002, with a green light from a panel of bioethicists, Venter's non-profit Institute for Biological Energy Alternatives (IBEA) has received over \$12 million dollars from the "Genomes to Life" program of the US Department of Energy to create new life forms in the laboratory.³ Venter's goal is "to direct the biology of the first man-made

species” which he believes will play a major role in bio-remediation, the production of chemicals and new pharmaceuticals.⁴ Last year, Venter and Nobel Laureate Hamilton Smith took just 14 days to assemble a known bacteriophage consisting of 5,386 base pairs of synthetically produced, commercially available DNA. IBEA asserts that the synthesis “poses no health or ethical concerns.”⁵

Legal Biopiracy: “Venter’s expedition challenges national sovereignty over biodiversity,” explains Lucia Gallardo of Acción Ecológica, based in Quito. “Venter’s institute negotiated access to Ecuador’s biodiversity behind closed doors and without public debate. Although Venter’s researchers can point to a Memorandum of Understanding (MOU) signed by government authorities in Ecuador, we believe it is inadequate and violates our laws on access to biodiversity.”

Venter’s Institute reportedly employs three, full-time employees who work with the US State Department to obtain necessary permits for collecting genetic resources from foreign territories.⁶ “But the US government is not a signatory to the UN Biodiversity Treaty,” says Gallardo, “and therefore isn’t legally bound to recognize national sovereignty over biodiversity.”

Privatizing Diversity? Microbial samples collected by Sorcerer II are shipped to Venter’s laboratory in Maryland (USA) where they are de-coded by a bank of state-of-the-art genetic sequencing machines operating around the clock.⁷ IBEA pledges not to patent the raw microbes it collects and sequences, but CSOs in Quito warn that patents could be claimed on modified microbes or on new life forms engineered from microbial samples.

“We are profoundly troubled by the potential of Venter or others to privatize microbes found in our region,” says Chilean activist Camila Montecinos of GRAIN. “There is nothing in the MOU with Chile or the Galapagos to prevent monopoly patent claims on any commercially useful results derived from our collected diversity.”

Murky Waters: “The lack of transparency surrounding Venter’s expedition is alarming,” adds Silvia Ribeiro of ETC Group. In response to a question posed by ETC Group at a March 4 press conference, Dr. Venter said all of the expedition’s collecting permits would be posted on the Sorcerer II website (www.sorcerer2expedition.org). Three MOUs are available (for Chile, Ecuador and French Polynesia), but as of July 21 permits have not materialized for Mexico, Panama and Costa Rica – locations where Venter’s crew has already sampled – nor for any country where he intends to sample. Despite repeated requests from ETC Group, IBEA refuses to reveal which individuals or government agencies have negotiated or signed permits. IBEA’s vice-president for communications suggested that ETC Group contact the US State Department for further information! Although the Sorcerer II website offers to provide updates on the expedition’s whereabouts, no new information has been posted since the March 4 press conference and the “voyage tracker” map is still “coming soon.”

Alejandro Nadal, coordinator of the Science and Technology Program of the Colegio de México, notes the confusion surrounding Venter’s permit to collect microbial diversity in Mexico, reportedly signed by an official at the National University of Mexico (UNAM). “It is at least surprising that reference is made to UNAM having granted Venter’s researchers a permit for collecting since the coordinator responsible for research agreements at UNAM doesn’t know anything about it,” said Nadal.

According to Nadal, in 2001 when several organizations successfully challenged a UNAM-Diversa bioprospecting project to collect microorganisms, it became clear that UNAM did not have the legal authority to grant that type of permit. "The authorities [PROFEPA] concluded that the contract was not legal and that a widespread public consultation about bioprospecting was needed in Mexico.⁸ The Diversa contract was suspended, but the issue was not settled – and now we're confronted with a biopiracy case with far greater implications than the Diversa case."

South governments were not the only ones caught off guard by Venter's "opportunistic" expedition.⁹ The government of Bermuda admits it was only minimally aware of Venter's actions.¹⁰ The Sorcerer II was long gone before authorities in Bermuda realized the need to revamp their biological specimen permit to reflect the realities of genetic resources policy in the 21st century.¹¹ Jack A. Ward, Director of Bermuda's Conservation Services, told *The Royal Gazette*, "Every country is struggling with this at the moment because things are changing so fast."¹²

Silvia Rodriguez, from the Biodiversity Coordinating Network in Costa Rica, adds, "There is no public information available in Costa Rica about this expedition. Even the National Commission for Biodiversity Management (CONAGBIO) is completely unaware of any agreement with IBEA and is ignoring that Venter may have collected in Costa Rica. Our Biodiversity Network, which includes farmers, indigenous peoples and others actors is represented at CONAGBIO and we have not received any information."

"Unfortunately, Costa Rica has set very bad precedents for biopiracy. We thought the biodiversity access laws would control it, but obviously they are not working. Venter's expedition is especially alarming because of the potential misuses of information and resources extracted from Costa Rica. No institution in Costa Rica has the right to authorize a process that could involve creating new life forms or bioweapons," said Silvia Rodriguez.

Global Warning: Civil society organizations meeting in Quito for the Social Forum of the Americas will discuss how to coordinate their work, continue to track Venter's expedition and expose its political, social and ethical implications to public scrutiny in each country. They will also recommend that the issue of biopiracy and Venter's expedition be addressed at the World Social Forum in Brazil, a gathering that is expected to draw over 100,000 participants in Porto Alegre, Brazil, January 26-31, 2005.

"We invite the Discovery Channel's Quest TV program, which is partially funding Venter's expedition, to document the civil society protests in Quito and in Brazil next year," adds Silvia Ribeiro of ETC Group.

Venter's microbe-hunting expedition should also be examined by the Convention on Biological Diversity's technical and scientific body (SBSTTA) meeting in Thailand in February, 2005.

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For more background on Venter's expedition:

ETC *Communiqué* Issue #84, March/April 2004, "Playing God in the Galapagos"
go here <http://www.etcgroup.org/article.asp?newsid=442> to view

¹ Anon., IBEA news release, "IBEA Researchers Publish Results from Environmental Shotgun Sequencing of Sargasso Sea in *Science*...", March 4, 2004, available on the Internet: http://www.sorcerer2expedition.org/press/3-4-04_1400.htm. A map of the Sorcerer II's general route along with other information about the expedition, including the text of some MOUs, are available at <http://www.sorcerer2expedition.org>

² Philip Cohen, "A terrifying power," *New Scientist*, January 30, 1999, p.10.

³ Anon., US Department of Energy news release, "Researchers Funded by the DOE 'Genomes to Life' Program Achieve Important Advance in Developing Biological Strategies to Produce Hydrogen, Sequester Carbon Dioxide and Clean up the Environment," November 13, 2003, available on the Internet at http://energy.gov/engine/content.do?PUBLIC_ID=14450&BT_CODE=PR_PRESSRELEASES&TT_CODE=PRESSRELEASE

⁴ Craig Venter's commencement address, Boston University, May 16, 2004; available on the Internet: <http://www.bu.edu/news/highlights/2004/05/16-commencement.html>

⁵ Anon., IBEA news release, "IBEA Researchers Make Significant Advance in Methodology Toward Goal of a Synthetic Genome," November 13, 2003. Available on the Internet at <http://www.bioenergyalts.org/news.html>

⁶ John Russell, "Venter Makes Waves – Again," *Bio-IT Bulletin*, April 16, 2004. Available on the Internet at <http://www.bio-itworld.com/news/041604>.

⁷ Ibid.

⁸ PROFEPA is the Procuraduría Federal de Protección al Ambiente.

⁹ Tania Theriault, "Preventing Biological Piracy in Bermuda's Waters," *The Royal Gazette*, July 9, 2004. Available on the Internet at <http://www.theroyalgazette.com/apps/pbcs.dll/article?AID=/20040709/NEWS/107090067>

¹⁰ Ibid.

¹¹ Rex Dalton, "Bermuda gets tough over resource collecting," *Nature*, vol. 429, 10 June 2004, p. 600.

¹² Tania Theriault, "Preventing Biological Piracy in Bermuda's Waters," *The Royal Gazette*, July 9, 2004.

The Action Group on Erosion, Technology and Concentration, formerly RAFI, is an international civil society organization headquartered in Canada. The ETC Group is dedicated to the advancement of cultural and ecological diversity and human rights. www.etcgroup.org. The ETC Group is also a member of the Community Biodiversity Development and Conservation Programme (CBDC). The CBDC is a collaborative experimental initiative involving civil society organizations and public research institutions in 14 countries. The CBDC is dedicated to the exploration of community-directed programmes to strengthen the conservation and enhancement of agricultural biodiversity. The CBDC website is www.cbdprogram.org