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Prof. tests 'salt water energy'

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In May, a video went up on YouTube that showed a man exposing a tube of saltwater to radio frequency beams, generating bright flames and a slew of criticism from many scientists.

Several scholars were doubtful of the video and the claim that salt water, which covers 71 percent of the earth, could be burned and used as an energy source, but after Penn State professor Rustum Roy saw the video, he said he was intrigued.

"I was curious, not skeptical," Roy said. "A scientist has to check facts."

So Roy, the Evan Pugh professor of solid state and the first director of the Materials Research Laboratory (MRL), checked his facts.

He went to visit the researcher in the video, Erie resident John Kanzius, who made the discovery that salt water could be burned using radio waves, Roy said.

Kanzius said the discovery came when he was trying to find a cure for cancer using a radio wave generator he had created, and a person observing his work asked him if he had tried to desalinate -- or remove the salt from -- the water.

Using his radio wave generator, Kanzius then tried to desalinate the salt water, but he said he received a different result than expected.

"I couldn't get the water to boil, but I could get it to burn," he said.

Using Kanzius' generator, Roy led 50 different experiments in his lab earlier this month to prove Kanzius's discovery true -- that saltwater could be burned as a possible energy source.

Roy said Penn State research associates Manju Lata Rao and Tania Slawecki performed the demonstrations in front of about a dozen of the senior-most faculty members of physics and chemistry.

"We were the first scientific group to confirm facts of what [Kanzius] claimed," Roy said.

The idea that salt water could be used as an energy source could have huge implications, because salt water is the most infinite resource on the earth, Roy said.

"If the energy cost isn't too bad, the environmental advantages are obvious and huge," Roy said.

As of today, the MRL no longer has the radio wave generator; however, Kanzius said he is making one for Penn State to perform its own experiments at the lab.

The Kanzius-made generator works through radiation, Roy said, adding that it "electrolyzes water without electrodes or current."

Roy said when salt water is exposed to the radio wave generator, the waves break up water into hydrogen and oxygen that burn brightly and continuously.

"This discovery was 100 percent Mr. Kanzius," Roy said. "We started to take it further."

Rao, one of Roy's research associates who performed the experiments in early September, said the research team used water with different concentrations of salt.

"The higher concentrations burn brighter flames," Rao said.

The research team also tried to burn water without salt, which only started to boil, showing that salt is necessary to burn water, she said.

Roy said he presented the information to the Department of Defense to try to obtain funding for further research, though he's not sure when he'll hear back.

"I'm certain they'll pick it up in some shape or form," he said.

Roy added that he is hopeful about implications this research could have for Penn State's many fields of science.

"Lots of people will be looking into the engineering aspect, the energy aspect, the materials aspect," Roy said.

"It's a big opening for Penn State."