



Hassanien
in his laboratory

NATURE'S GIFTS HELP FORTIFY FOODS

by Cristina Serra

Mohamed Fawzy Ramadan Hassanien, the 2014 winner of the Atta-ur-Rahman Prize, says chemicals from seeds and fruits can make food healthier.

Nature offers many chemical compounds that can make foods more nutritious. But finding them requires commitment and a good knowledge of chemistry. Egyptian biochemist Mohamed Fawzy Ramadan Hassanien, the 2014 winner of the Atta-ur-Rahman Prize in chemistry, is a hunter of such compounds.

The prize is awarded annually by TWAS to an under-40 chemist living and working in a developing country.

Rahman, a chemist and TWAS Fellow (1985), is a pioneering advocate of science education and president of the Pakistan Academy of Sciences.

Hassanien, a professor of biochemistry at Zagazig University in Egypt, received the prize during TWAS's 25th General Meeting in Oman for discovering potentially useful substances from uncommon vegetables and fruits.

Hassanien is interested in bioactive lipids because "their contribution to our health and well-being is widely recognized," and he carries out research on bioactive molecules and on functionality and properties of food components. Non-conventional oilseeds have unique bioactive and functional properties that may augment the supply of novel foods and also pharmaceuticals.

Inspired by his father, a professor of food science at Zagazig University,

Hassanien screens underutilized and non-traditional seeds, fruits and spices of Egyptian, Indian and Arabic origins in search of interesting compounds.

"I select the most valuable ones by anticipating their potential commercial usefulness," he explained. He applies basic analytical chemistry for precise identification of interesting compounds. Then, more sophisticated analysis leads to application of the findings.

Black cumin seed oil, for example, is rich with antioxidants and other chemicals with antiviral properties. "We have used these substances to make fortified white cheese," he adds. Already, some Egyptian companies have expressed interest in commercial exploitation of his findings.

With a PhD in food chemistry from Berlin University of Technology in Germany (2004), Hassanien's interests are not restricted to chemistry and lab work. The environment is his second focus. Potato peels, a by-product of processing, can be further used, Hassanien found. He is extracting antioxidants, which prolong the life of other compounds, from the discharged materials, recycling a raw product (up to 10-25% in weight) that otherwise would be discarded.

"The compounds we have obtained from potato peels ... can be used to protect common oils during prolonged storage," he adds. Now his team is thinking of scaling up the process.

Receiving the Atta-ur-Rahman Prize was a great pleasure, Hassanien said. "It is one of the greatest prizes in the field of chemistry worldwide," he explained. "I know that the competition was high. This makes it even more important to me." ■

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