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Contact Info

Headquarters

Sustainable Food News
P.O. Box 17683
Portland, ME 04112

office: 207.749.5249

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Genetic engineering disrupts natural plant metabolism, says study

Inventor of email says GE soy accumulates known carcinogen

by Sustainable Food News

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Genetic engineering of soy disrupts the plant's natural ability to control stress, invalidating the U.S. Food and Drug Administration's (FDA) regulatory framework of "substantial equivalence" used for approving foods made with genetically modified organisms (GMOs).

That's according to a new study [published in the journal *Agricultural Sciences*](#), and led by V.A. Shiva Ayyadurai, Ph.D., an MIT-trained systems biologist, self-proclaimed inventor of email, newlywed husband of actress Fran Drescher, and founder and director of [International Center for Integrative Systems](#) in Cambridge, Mass.

The study found substantial difference in concentrations of formaldehyde and glutathione in genetically engineered (GE) soybean tissues that could "cause deleterious biological impacts," and reveal how a "small, single recombinant DNA event may create large, unpredictable, systemic perturbations to molecular systems equilibria."

"The results demand immediate testing, along with rigorous scientific standards, to assure such testing is objective and replicable," said Ayyadurai. "It's unbelievable such standards for testing do not already exist. The safety of our food supply demands that science deliver such modern scientific standards for approval of GMOs."

The FDA considers GE food crops that it has approved for commercial sale the "substantial equivalent" of conventional crops. The agency reaches that decision by assessing data submitted by a GE crop manufacturer and determining that there is no significant difference between the modified and unmodified products.

However, the current criteria for assessing "equivalence" considers only basic nutritional and characteristics such as taste, sight, smell and touch.

Ayyadurai used his invention, CytoSolve, to integrate nearly 6,500 *in vitro* and *in vivo* laboratory experiments to discover the accumulation of formaldehyde and a "dramatic depletion" of glutathione, an antioxidant necessary for cellular detoxification, in GE soy. The results indicate that formaldehyde and glutathione are likely critical criteria for distinguishing the GMO from its non-GMO counterpart.

The study concludes the FDA's current standards for safety assessment of GMO crops, based on the principle of "substantial equivalence," is "outdated and unscientific" for GE food. If formaldehyde and glutathione were criteria, then the GMO would likely not be deemed "equivalent" to its non-GMO counterpart, the study said.

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