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New Food Formula: Tastes Fine, Kills Worms

By [DONALD G. McNEIL Jr.](#)

Kraft Foods, the conglomerate built on macaroni and cheese, is working on a new and unusual product line — food that is not only tasty, but kills intestinal worms.

It is not intended for sale in the United States, but is aimed at rural Asia, Africa and Latin America, where worms leave millions of children lethargic, dangerously anemic and, sometimes, passing blood.

The food is in the early development stage, and a spokeswoman said the company was not ready to say whether it would be a cheese, a pasta, a granola bar or something else. But it will incorporate deworming chemicals developed by TyraTech, a company in Melbourne, Fla., that makes safe [pesticides](#).

The pesticides, explained R. Douglas Armstrong, chief executive of TyraTech, are derived from plant oils. He would not name the plants, but compared the idea to the power of citronella to repel mosquitoes.

The oils attach to three olfactory and central nervous system receptors found only in invertebrates. When overstimulated, Dr. Armstrong said, those receptors produce unstoppable cascades of impulses in the nervous systems of insects or worms, repelling or killing them.

Dr. Armstrong compared it to ringing a doorbell so incessantly that it finally triggers a [heart attack](#). Because vertebrates, including humans, lack these receptors, the oils are harmless to them.

They have been tested on mice, which are also vertebrates. Five days of treatment cleared them of dwarf tapeworms, TyraTech said. Tests on humans have not been done, so it is not clear what the prospective delicacies will taste like, said Sarah Delea, a spokeswoman for Kraft.

Dr. Armstrong said that different blends would work and that taste could be removed, masked with food flavors or coated with microencapsulization, as is done with medicine.

Plant oils' killing power was discovered by accident, he added.

Essam Enan, a biochemist who is now the chief scientific officer for TyraTech, was formerly a [cancer](#) researcher studying the oils at the University of California, Davis, which is in the hot Sacramento Valley, when there was a power failure.

“Pretty soon, the other labs in the building began to close down for the day,” Dr. Armstrong said. “They had opened their windows. But there were too many flies and bugs, and it was too hot to close them.”

“But there were no bugs in Essam’s lab,” he continued. “Then he found some dead flies. That’s when he began to appreciate the potency.”

Dr. Frank O. Richards Jr., a parasitologist at the Carter Center in Atlanta, said he found the idea of a worm-killing food “interesting but not convincing yet.”

He would want to see proof, he said, that it worked on roundworms, which are metabolically different from tapeworms and much more common. And he would want proof that it killed worms, rather than just irritating them enough to make them migrate to other organs.

“We’re always interested in new worm drugs, because there isn’t a lot of research into them,” he said. “But a lot in this remains to be looked at.”

Although worm killing is a new angle for Kraft, Ms. Delea said, the manufacturer does reformulate some foods to be used in poor countries to improve health.

For example, she said, the Tang drink it sells in Asia and Latin America has extra [vitamins](#). And the Eden brand cheese it sells in the Philippines is fortified with iodine. Iodine deficiency is the leading preventable cause of [mental retardation](#), and it also leads to stunting and goiters.