

Physicist Pioneers new Method for Making Chocolate

What if I told you that chocolate actually tastes better when you take fat out of it? You wouldn't believe me, right?

Well, it appears to have happened.

Rongjia Tao, a physicist from Temple University in Philadelphia, appears to have stumbled onto [a new method for making healthier and tastier chocolate](#).

The secret? Run the chocolate through an electric field.

[Tao's findings](#), published Monday in the Proceedings of the National Academy of Sciences, came after he was contacted by representatives of Mars Inc.

The candy company was having a problem. Its chocolate was clogging the machinery.

Cocoa beans are typically dried and then roasted before they are ground and liquefied. The result is a liquor (what gives the chocolate its intense flavor) that is blended with the cocoa butter (or the fat, which gives it the rich, creamy texture). This is where the problem arises.

Mars reached out to Tao hoping he might be able to adapt a technique he had used to improve the viscosity of crude oil. The technique increased the viscosity of the oil, making it easier to transport through the miles of underwater pipelines.

Could this process also work with chocolate?

Drawing from his work with oil, Tao tried running the liquid chocolate through an electric field. He found that as the chocolate passed through the field, it changed shape. Instead of the cocoa solids being in circles, the solids became

elongated, which allowed the solids to be packed more tightly, improving the viscosity of the chocolate. Tao then realized that, if the changed shape of the solids could change the viscosity, he didn't need the cocoa butter to do it.

In the end, Tao was able to remove as much as 20 percent of the fat from the chocolate.

But how does the chocolate taste? The human experience of taking fat out of food is generally (universally?) not a positive one when it comes to taste. Chocolate, however, might be an exception.

[Reports indicate](#) that chocolate that had passed through the electric field actually tasted better. So for perhaps the first time in history, we have a product that tastes better after taking out the fat (well some of it).

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Heather L. Graham is an Associate Professor of Psychology at [Collin College](#) in McKinney, Texas. She blogs [here](#).