

## **Jessica Chang – 3MT Competition Script**

Reminisce with me about the last time you had a traditional sponge cake. Recall that airy feeling as you cut a slice and take that first bite - soft, fluffy and sweet. But what if, despite this delicious-looking confection front of you, you couldn't have a single bite - all because it had egg in it and your diet is egg-free? This is just one of the many products that egg-avoiding consumers need to watch for which can be due to several reasons.

In addition to allergies, growing awareness regarding health, animal welfare, and the environment has increased the population of people avoiding eggs – which is not an easy thing to do. In addition to baked goods, eggs are used in a wide variety of foods which can range from condiments to even that end-of-the-day cocktail! But as a result, people find it difficult to plan or purchase meals, which can lead to decreased quality of life or, in some cases, nutritional imbalances. So, food scientists began asking themselves, what can we use to replace eggs and address all these new concerns?

And this is where I spill the beans! My project is based on two main driving factors: The first is the already booming success of a pioneer for plant-based egg alternatives known as aquafaba (or the canned liquid of a pulse called chickpeas) and the second is the fact that Ontario is one of Canada's largest producer of beans – 78% percent of which are sold canned! My research seeks to make the most of Ontario's pulse market and give newfound value to the otherwise discarded canned liquids of other pulses – How am I doing this? By determining their ability to make full, fluffy and stable foams for foam-based food applications – like creating the airy structure in eggless cakes. We will call these liquids “bean aquafaba's.”

In our experiments, we took 3 bean aquafaba varieties, whipped them and made chickpea aquafaba our golden standard. And what we found was that they were able to generate 85%-90% of chickpea's foam volume and were able to completely match its stability. In addition, we had also found that colored beans leach out colored antioxidants which are present in colored beans but not in chickpeas – thus giving bean aquafaba's their own edge as egg alternatives.

Using these beany egg replacements will not only take full advantage of a highly accessible product market but also give newfound value to the entire canned bean product itself. So, the next time you see a can in the cupboard or take a bite of cake, just remember that a can of beans just may be the key to a more inclusive food market and achieving everyone's right to an enjoyable, nutrient-enriched diet. It's “bean” a pleasure and thank you for your kind attention!