

Prototype Development of Avocado-Powder based Food Concepts

TRUFFLES (CHOCOLATE)



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3.6 Chocolate Truffles

3.6.1 Product Background

Avocado powder serves as an additional flavour in chocolate truffles, and adds creaminess and a softer texture.

3.6.2 Prototype Development

The exact development details can be found in Appendix F. Pasteurised cream at 90°C was added to milk chocolate pieces and mixed well. Once mixed, avocado powder was thoroughly mixed into the product and chilled to approximately 12°C. The range of compositions tested were 1%, 2.5% and 4% avocado powder. Table 1 shows the exact composition for the final product.

Table 1 Formulation used for chocolate truffles.

Ingredients	Composition (%)
Creamy Milk Chocolate 33% Cocoa Solids	62.5
Pasteurised Fresh Cream	35.0
OVĀVO Avocado Powder	2.5

Table 2. NIP for chocolate truffles

Nutrient	Reference value (per 100g)
Energy (kJ)	2075.5
Protein (g)	6.9
Total Fats (g)	37.5
- Saturated fats (g)	20.9
Carbohydrates (g)	33.4
Sodium (mg)	52.4

The truffles were coated with melted chocolate and frozen at -10°C. Quality specification of the products was water activity of 0.89.

3.6.3 Effects of avocado powder on chocolate truffles

There was no avocado powder taste within the product below 2.5% addition rate. However, beyond 2.5% avocado powder addition, the product started to have some noticeable grittiness and slightly bitter notes. The chocolate colour of the product was advantageous to hide any surface level oxidation resulting from the powder.

Freezing time increased by about an hour compared to the control because of the higher levels of fat. They also caused the product to melt faster when left at room temperature compared to the control, but provided a softer texture. There was no imminent difference noticed in flavour and creaminess between control and ideal composition at 2.5% avocado powder.

4.0 Focus Group Study

4.1 Objective

The objective of this element of project was to understand how well an avocado powder would be received by consumers by itself and in prepared applications. Prototype products were developed and presented to avocado consumers in focus group discussions to gather a broad range of consumer opinion on the prototypes, as well as further insights into potential avocado powder-containing products.

Twenty-four regular avocado consumers aged 18 to 65 were recruited from the Palmerston North community to participate in focus group discussions (5 to 7 per focus group) for one 90 minute discussion & tasting. This was conducted through FEAST, Massey’s sensory professional team.

4.3 Results

4.3.1 Participant avocado consumption habits

Consumption habit discussion summarised in detail in Table 3, which is ordered from left to right of most frequently mentioned to least frequently mentioned. Key themes included highest consumption of avocado during the season “when the price is low”, with most participants purchasing from the supermarket. Whilst some participants reported consuming avocado on its own “as a fruit”, the majority reported consuming avocado in combination with other foods, which included on toast, in sushi, or “as a smoothie”. Participants generally consumed avocado because it is healthy, with many mentioning “healthy fats”. Other important reasons were “good taste”, “good texture” and “satiating”. Another key insight was that purchase of NZ grown avocados was appealing to many participants due to the environmental impact of imported avocados and avocado plantations in South America.

Table 3. Participant avocado consumption habits based on all focus groups

Section	Individual terms used by participants
Frequency	1-2 times a week, when in season, once in 2 weeks, once a month,
Purchase Location	Supermarket, Fruit and vegetable shop, farmers market, own garden
Usage occasion	Guacamole, toast with eggs, bacon, tomatoes, on its own, with honey/sugar/salt/soy sauce/vinegar/wasabi/sesame oil, in salad, as a smoothie, kebab, sushi, avocado oil
Reasons for consumption	Healthy, healthy fats, tasty, satiating, mild flavour, locally produced, substitute for dairy/butter, in sandwich, good protein, neutralises strong flavours
When	Breakfast, Snack, Lunch, Dinner

4.3.2.3 Chocolate Truffles

Approximately 30g of chocolate truffle was shaped into spheres and coated in melted milk chocolate with 33% cocoa solids. They were frozen at -10°C for 2 hours before serving. The water activity was 0.89, which required coliform tests.

Participants evaluated the chocolate truffle to appear as an indulgent and decadent treat. Some expected mashed up avocados or ice cream due to the chilled serving temperature. They mentioned the texture reminded them of biting into an avocado with the crispy outer shell and softer centre, which was quite attractive as it also had a melt-in-mouth consistency. Regarding flavour, they were surprised by the lack of avocado taste but also mentioned that it was too sweet. Participants suggested that reducing portion size and ensuring the shape is consistent and round was preferred.

5.0 Recommendations

5.6 Chocolate truffles

Partial oil substitution of 2% avocado powder yielded a soft and fluffy texture with no impact on colour or cooking time. This also allows reduction in the amount of oil required, which is currently 5%.

Powder should be added into the ganache mixture, after the chocolate pieces have fully melted, allowing for complete powder dispersion. Use of chocolate-based desserts is suggested as they mask any oxidation from the powder.

Instead of milk chocolate, dark chocolate with 72% cocoa solids can be used. Besides powder incorporation into desserts such as chocolate mousse, candy and cakes could have more development potential with avocado powder as a fat substitution. Vegan cheesecakes using avocado powder poses a good challenge for product development, as well.

Notably consumers were expecting an avocado powder containing product to have the flavour of avocado and so is important for optimisation of any further product positioning and product development, with other matching ingredients.

Methodology of Development for Chocolate Truffles

Table 4. Ingredients for chocolate truffles

Ingredients	Composition (%)
Creamy Milk Chocolate, 33% Cocoa Solids	62.5
Pasteurised Fresh Cream	35.0
OVĀVO Avocado Powder	2.5

Table 5. Ingredient list for truffle coating

Ingredients	Composition (%)
Creamy Milk Chocolate, 33% Cocoa Solids	92.6
Vegetable Oil	7.4

Table 6. Recipe for chocolate truffles

1.	Chop up chocolate into small pieces using a serrated knife.
2.	Place the chocolate in a medium heat-proof bowl.
3.	Microwave cream for 45s, in a glass measuring container, and ensure temperature is approximately 95°C.
4.	Immediately pour the boiling cream over the chopped chocolate. Tap the bowl, twice on the counter to settle the chocolate into the cream, then let it sit for 2 minutes.
5.	Using a whisk, slowly stir in a circular motion, starting from the centre of the bowl and working out to the sides. Be careful not to add too much air to the ganache. Stir for 2 minutes until all the chocolate is melted.
6.	Allow the ganache to cool to 35°C before covering with cling-film and refrigerating for 1 hour, until completely firm.
7.	Line a plastic tray with baking paper
8.	Wash and dry your hands, then roll 30g of ganache into balls, placing each onto the tray.
9.	Place tray in freezer of -10°C for 2 hours
10.	5 minutes before taking the truffles out of the freezer, mix measured out milk chocolate with vegetable oil in a heatproof bowl, then microwave for 45s with 15s intervals, at 1100W *standard microwave setting
11.	Dip frozen truffles into melted chocolate and coat the truffles in melted chocolate completely and place onto lined tray to set
12.	Chill product in refrigerator, at 4°C, until time to serve