Creamy Gold Kiwifruit and Feijoa Sauce

Brief
The brief for this product development challenge has been provided by GRENOZ requesting the development of a sauce that is pleasing to the Asian palate as they wish to expand their sales to Asia. By following the technological process development resulted in an outcome that combines kiwifruit and feijoa in making a spicy fruity flavoured creamy sauce.

Specifications:
- Meet target market food legislation requirements
- Halal accreditable
- Have ‘clean label’ declaration - no ‘E’ numbers
- Stable shelf life
- Easy/quick pour
- Produced under strict HACCP conditions

Research
Key knowledge taken from research
- Researched data gave good indication of the popularity of kiwifruit in China showing how the Chinese palate enjoys its flavour. Data could be applied to Singapore which has a rich Chinese culture.

![Graph showing kiwifruit export to China](image)

**Fig 2** MPI data of export of gold kiwifruit to China indicating the popularity of kiwifruit.
- In the last few years QSRS have been booming in Singapore and people have become more likely to eat out.
- Seasonality of a key ingredients we were using made the development of this sauce potentially cause our sauce to be unmakable large scale. Profruits Gold kiwifruit juice concentrate and Heathers Feijoa, concentrated feijoa puree solved the issue.

![Graph showing establishment of fast food chains in Singapore](image)

**Fig 3 & 4** Establishment of fast food chains in Singapore

Development Process
Issues that we encountered were:
- Accessing bulk produce: This problem was solved by purchasing pre-processed purée and juice because it will be a better option for GRENOZ.
- Waste Reduction: Curbed by purchasing the pre-processed purée and juice as it eliminates the use of fresh products which ultimately reduces time, energy and food wastage.
- Optimising the formula: this included trialing the components affecting spiciness, acidity and sweetness. Sensory evaluations were conducted on over 150 people. This showed that we have achieved a high percentage of acceptability. We had 62% of people "really like/like" the product.

![Results from the open evening](image)

Sugar Crystallisation: Corn syrup is an effective inhibitor of crystallisation, an issue important in the development of the kiwifruit and feijoa sauce. When heated the various glucose chains tangle and obstruct the movement of the sugar and water molecules making them find it harder to find a crystal to fit in.

![Graph showing comparison between 134 and 849](image)

**Fig 9** Liquid glucose after being heated to the temperatures; 72°C, 80°C, 100°C and 150°C.

Testing for optimum temperature:
There was no difference in viscosity when heated between 70°C-80°C and at 100°C it sets solid. For the optimal formula it was agreed that 75°C would kill Lysteria, and not effect the texture and viscosity.

Stage gate decision: Final sensory testing indicated a harshness not acceptable to the wider market. Prior research indicated a preference for creamy sauces specifically hollandaise. This issue was resolved by marrying some of the GRENOZ hollandaise sauce with the kiwifruit and feijoa sauce. Sensory results were in favour of the new formula plus it is standard practice for GRENOZ to sometimes develop new sauces that include use pre-existing sauces as a base.

Packaging
Initial brief required limited packaging development because in industry they package in plastic satchels or pots.

A version of the bottle size label we developed on the right based on the current GRENOZ packaging for Mc Donald’s sweet ‘n’ sour sauce.

Conclusion
In conclusion we developed a sauce that pleases the Asian palate and sensors. It includes golden kiwifruit and feijoa, as well as the GRENOZ hollandaise sauce. This sauce fulfils most of the specifications and has been tested on approx. 200 people over the whole process. This proved that the final outcome is socially acceptable. It also meets pH specifications and viscosity specifications that makes it fit for purpose in the physical environment.

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