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Evaluation of the Performance of the Blight Resistant Bionca and Carrier Oils in Comparison to Rooster Potatoes and Traditional Oils in the Production of Healthier Crisps

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EXECUTIVE SUMMARY

COMMUNITY BASED RESEARCH PROJECT

Evaluation of the performance of the blight resistant potato Bionca and carrier oils in comparison to Rooster potatoes and traditional oils in the production of healthier crisps

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Executive Summary

In a comparison study between the performance of the *Rooster* potato variety and the *Bionica* potato variety with both traditional oils for frying and carrier oils in the production of crisps, it was found that the *Rooster* in olive oil was both most preferred in the sensory trials carried out and proven most thermally stable at high temperatures.

While this combination of potato and oil proved most successful, the variety and oil at the core of the research, the blight resistant *Bionica* and the carrier oil, were not as effective as a combination for the production of crisps. However, in a sensory preference test, there were no statistical significant differences between either variety, suggesting that the *Bionica* could replace the commonly grown *Rooster* as the largest yielding potato crop and reduce the need for often dangerous fungicides. In conjunction with this, by following the guidelines as per the Standard Operations Procedure (SOP) attached in the production of the crisps, the formation of acrylamide can be significantly reduced as can the occurrence of oxidation which are the two leading dangers associated with frying potatoes in oil. This improves the healthy aspects of the product as the oil remains stable and there is little to no degradation of the good fats present in the oil. The SOP highlights the importance and relevance of the length and temperature of the frying process and this must be taken into consideration in future production.

While the product was proven successful in production in terms of generating appropriate production guidelines it was also proven to the economically viable through the calculation of the cost of production if this venture was to remain community based. By using home-grown blight resistant potatoes and carrier oil from the current source (Lilliput Trading Co.) 55 45gram bags of these crisps at €1.50 per unit has the potential to generate €62.70 in profit. If the same potatoes were used with olive oil 55 bags at the same price would yield €43.45 in profit (see attached for full calculation of the cost of production).

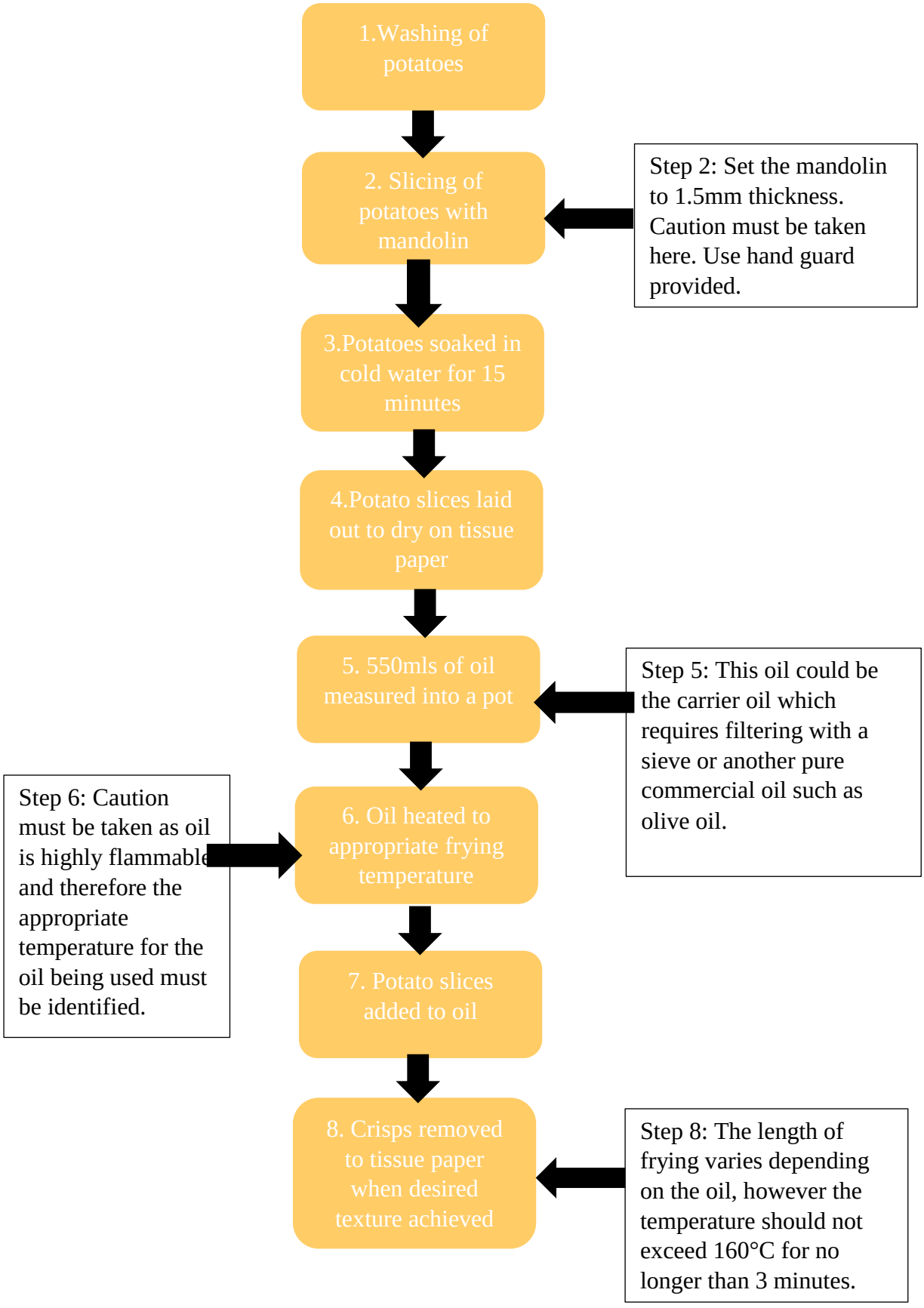
If this product was to be brought to the market as a community based venture the profit margin is significant, however it warrants further research in terms of packaging, shelf-life and various microbiological and chemical evaluations, all of which are potential community based research projects of the future. With both economic viability and proven sustainability, while maintaining the ethos of the waste reduction, this product has the potential to generate income for future community driven ventures

Cost of Production

The cost of production of the healthier crisps produced was calculated. The calculation of the cost of production including the potential profit if the crisps were sold at €1.50 per 45gram bag can be seen below. The cost of production with the blight resistant potatoes and two different oils was calculated.

Materials		**Units**	**Cost per unit**	**Total cost**
Potatoes		10kgs	€1 per kg	€10
Oil				
	Olive oil	5 litres	€3.84 per litre	€19.20
	Carrier oil	5 litres	x	x
			Total cost =	€29.20
Packaging cost				
360 units	18c per unit			
Cost per 45g bag	10kgs potatoes	=	2.50kgs of crisps	
	5 litres of oil	=	2.50kgs of crisps	
				Add packaging cost
Olive Oil cost	€29.20 per 2.5kgs	=	53c per 45g bag	71c per 45g g bag
Carrier oil cost	€10.00 per 2.5kgs	=	18c per 45g bag	36c per 45g bag
Profit				
€1.50 per 45g bag				
Olive oil profit	79c per bag	=	€43.45 per 55 bags	
Carrier oil profit	€1.14 per bag	=	€62.70 per 55 bags	

Standard Operations Procedure for the production of crisps (SOP)



This SOP has been designed appropriately for use on a domestic scale, some variations may ensue if carried to an industrial scale