

...INTRODUCTION

The growing demand for practical and healthier food sources is challenging researchers to find natural sources for sustainable and healthier added ingredients. The tomato industry currently produces enormous quantities of tomato seed and peel which although nutritionally rich are at present not utilized for human consumption. A variety of research has been conducted on how best to utilize these byproducts; however, the majority of these studies have until now focused on the manufacture of breads, food oils and animal feed.

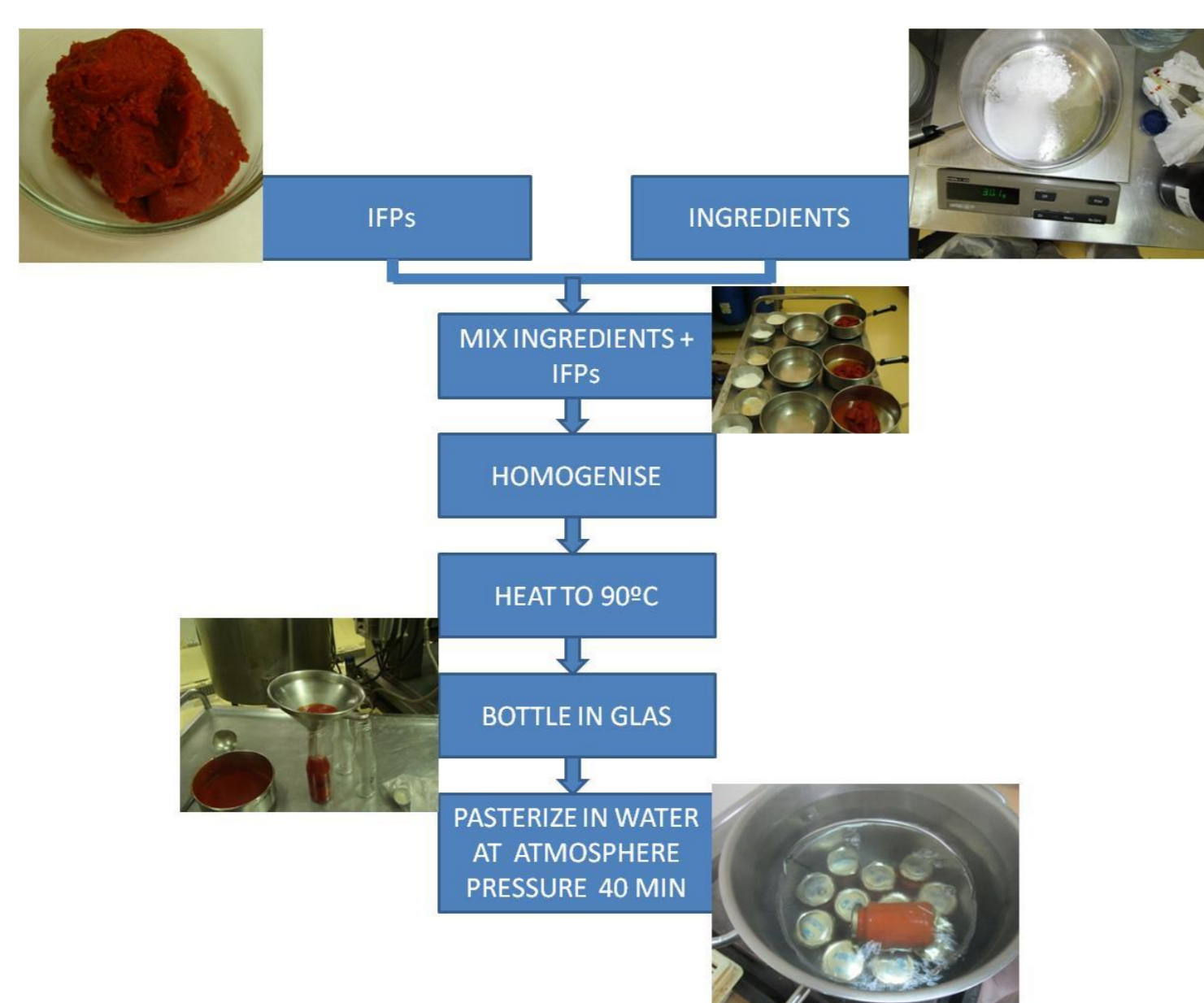
The objective of this study therefore was to reevaluate current tomato industry byproducts for the development of IFPs as texturing agents and food improvers for tomato products, while also improving both fiber and lycopene values

...METHODS

A fried tomatoes sauce was developed in which the standard concentrate was replaced using the recently developed IFPs (Intermediate Food Products).

Kinds of IFPs	
IFPs WITH HOT CONCENTRATE	HOT CONCENTRATE TOMATE + 5% AND 10% DRIED PEELS AND SEEDS (HCTDPS 5% AND 10%) HOT CONCENTRATE TOMATE + 5%, 10%, 20% AND 30% FRESH PEELS AND SEEDS (HCTFPS 5%, 10%, 20% AND 30%)
IFPs WITH COLD CONCENTRATE	COLD CONCENTRATE TOMATE + 5% AND 10% DRIED PEELS AND SEEDS (CCTDPS 5% AND 10%) COLD CONCENTRATE TOMATE + 5%, 10%, 20% AND 30% FRESH PEELS AND SEEDS (CCTFPS 5%, 10%, 20% AND 30%)
CONCENTRATE IFP BY HOT TREATMENT	BLEND OF SIEVED TOMATO PULP + 20%, 30% AND 50% FRESH PEELS AND SEEDS CONCENTRATE BY HOT TREATMENT (BSTPPFSCH 20%, 30%, AND 50%)

The manufacturing process is as follow.



The methodology for obtaining enriched fried tomato sauce is showed following.

TRIALS		
TRIALS	PROCESS	IFPs
TRIAL 1	FRIED TOMATO SAUCE WITHOUT REMOVAL OF STARCH AGENTS	HOT CONCENTRATE TOMATE + 5% AND 10% DRIED PEELS AND SEEDS (HCTDP 5% AND 10%)
		HOT CONCENTRATE TOMATE + 5%, 10%, 20% AND 30% FRESH PEELS AND SEEDS (HCTFPS 5%, 10%, 20% AND 30%)
		COLD CONCENTRATE TOMATE + 5% AND 10% DRIED PEELS AND SEEDS (CCTDPS 5% AND 10%)
TRIAL 2	FRIED TOMATO SAUCE WITH REMOVAL OF STARCH AGENTS	COLD CONCENTRATE TOMATE + 5%, 10%, 20% AND 30% FRESH PEELS AND SEEDS (CCTFPS 5%, 10%, 20% AND 30%)
		HOT CONCENTRATE TOMATE + 5% AND 10% FRESH PEELS AND SEEDS (HCTFPS 5% AND 10%)
TRIAL 3	FRIED TOMATO SAUCE WITH REMOVAL OF STARCH AGENTS	BLEND OF SIEVED TOMATO PULP + 20%, 30% AND 50% FRESH PEELS AND SEEDS (HCBTFPS 20% 30% AND 50%) CONCENTRATE BY HOT TREATMENT (BSTPPFSCH 20%, 30%, AND 50%)

A subsequent sensorial testing was conducted to evaluate a range of attributes. The tasting note that it shown a following, was used for the tasters.

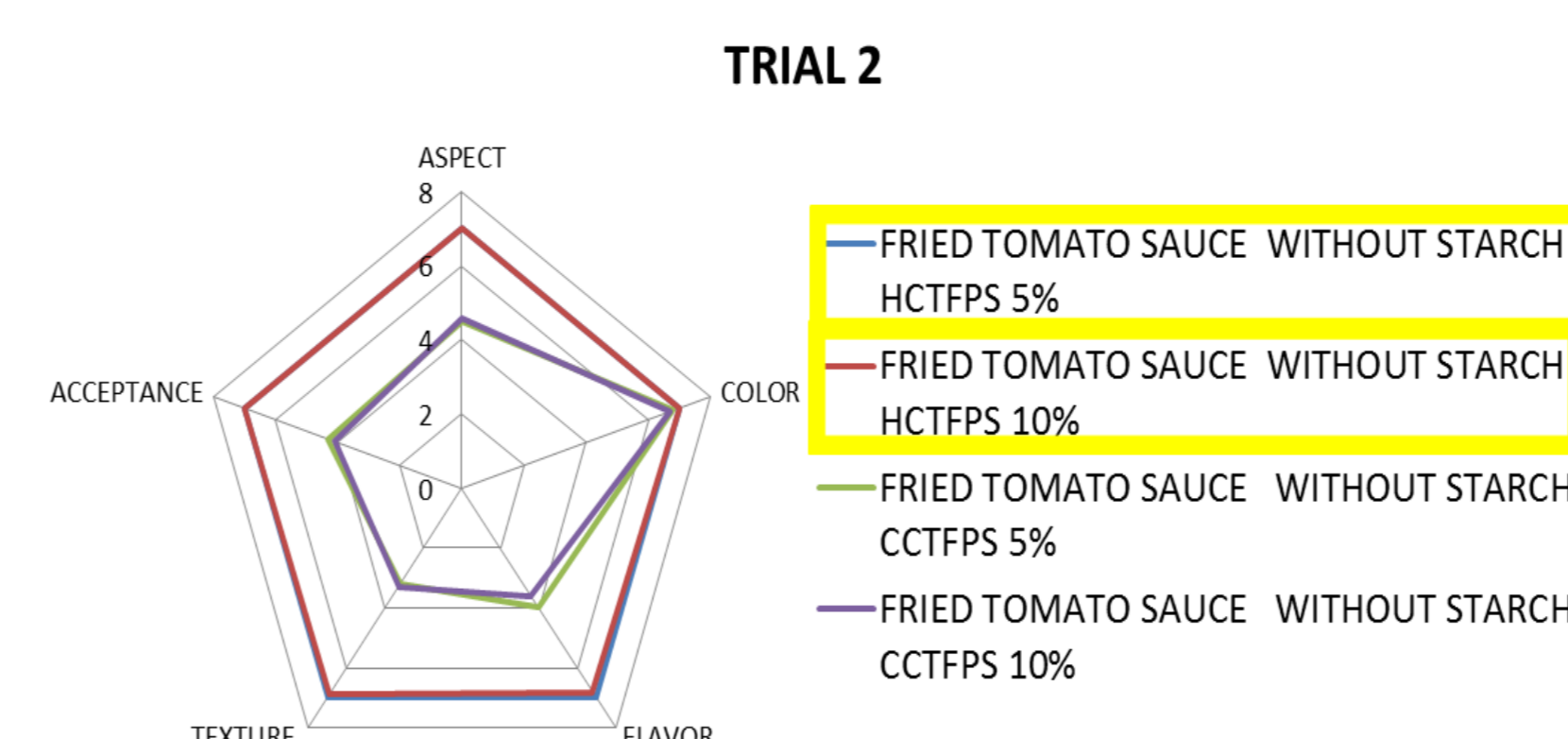
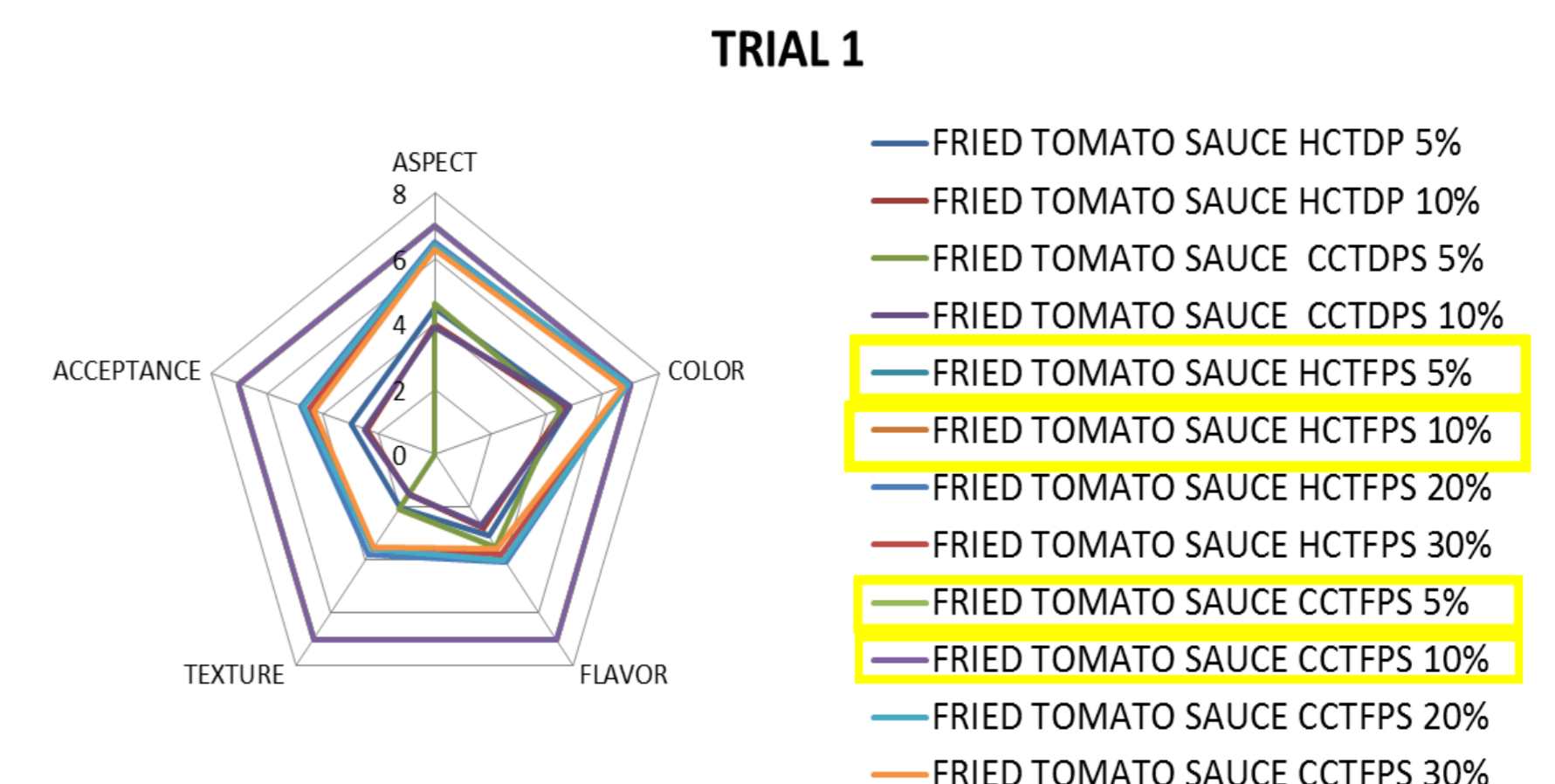
DATE:	NAME:	SAMPLE CODE						
ASPECT	1	2	3	4	5	6	7	
COLOR	1	2	3	4	5	6	7	
FLAVOR	1	2	3	4	5	6	7	
TEXTURE	1	2	3	4	5	6	7	
ACCEPTANCE	1	2	3	4	5	6	7	
OBSERVATIONS								

1: liked very much less
2: liked moderately less
3: liked slightly less
4: liked neither more nor less
5: liked some more
6: liked moderately more
7: liked very much more



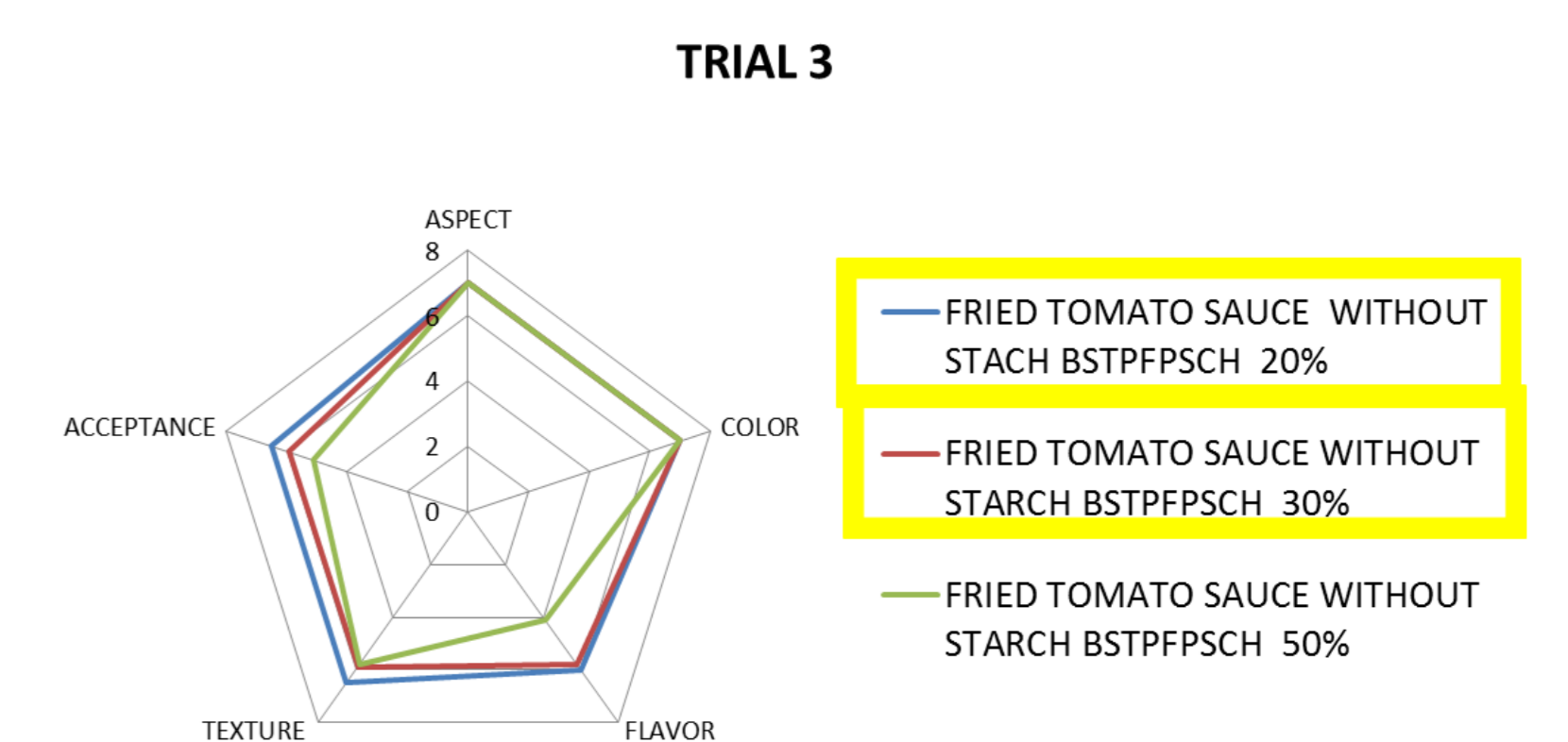
...RESULTS

The conclusion obtained from the first trial was that IFPs with fresh peels and seeds in concentrations of 5% and 10% gave positive results, in contrast with the other developed products.



In the second trial, the taste tests indicated that fried tomato prepared with the HOT concentrate IFPs with fresh peels and seeds blended to 5% and 10% had an acceptable texture.

In the third trial, the final results indicated that fried tomatoes sauce prepared using the IFPs obtained from tomato mixed with concentrations of 20% and 30% fresh peels and seeds and subsequently



concentrated were acceptable by the tasting panel.

...CONCLUSION & IMPACT

The production of fried tomatoes sauce using various IFPs in a HOT break concentrate caused no negative sensorial changes in the final product, and will be financially viable. These new IFPs also increase lycopene and fiber content. Furthermore, the elimination of added starch (with subsequent savings) and the reprocessing of current byproducts, has benefits for producer and consumer alike.

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