

Salt Reduction in Food Preparation

Development of formulations with aromatic plants

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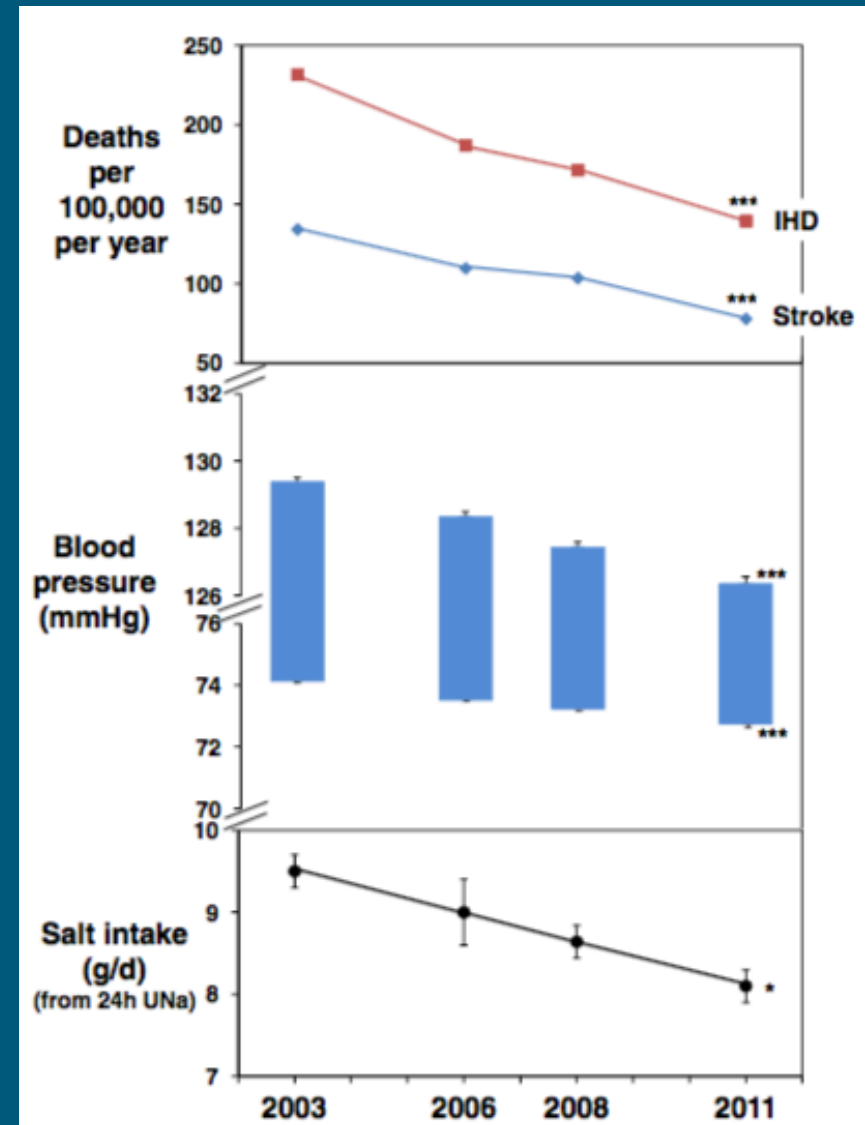
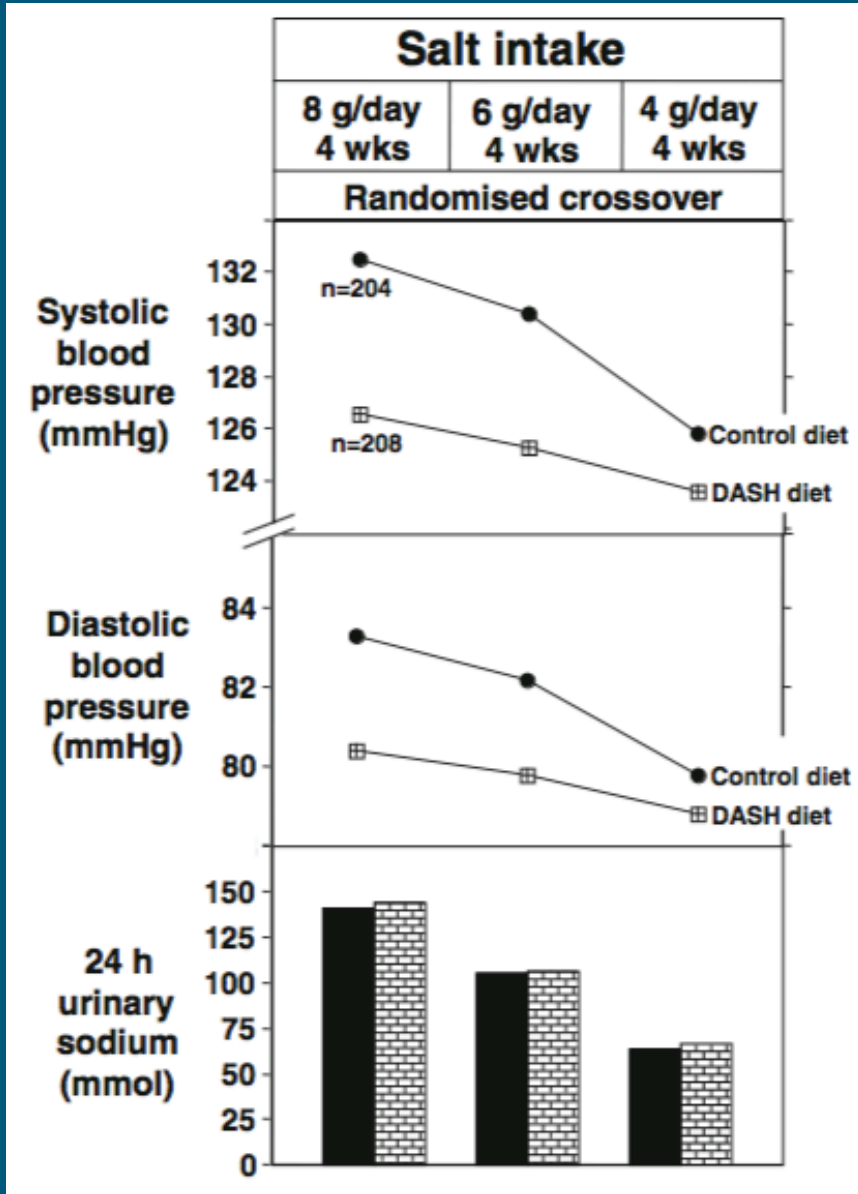
2 de julho 2018



salt and health

- excessive salt consumption is a risk factor
 - Arterial Hypertension **22% worldwide**
29% Portugal
 - Heart disease and stroke **Premature mortality**
- salt reduction
 - 9 to 12 g / day → 5 to 6 g / day → significant impact in mortality

salt and health



salt and food

- > 75% salt intake
- cooked or processed food

WHO recommendation
5 g / day

Portugal → 10,7 g/day

↓ salt - priority



MacGregor et al, 2013

WHO, GLOBAL STATUS REPORT on noncommunicable diseases, 2014

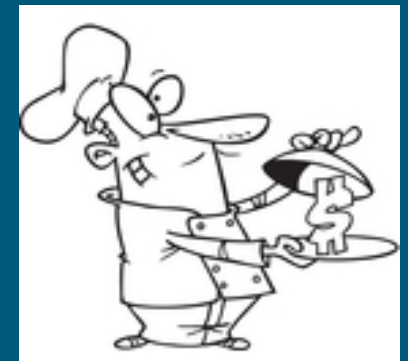
DGS, 2017, Portugal

salt and catering

- salt is used "empirically"
- taste
- voluntary programs have failed in the long term
- catering sector is resistant - profit impact
- salt substitutes - negative perception



"The patrons at table five want to know how do you manage to get such a wonderful taste in your salt-free soup"



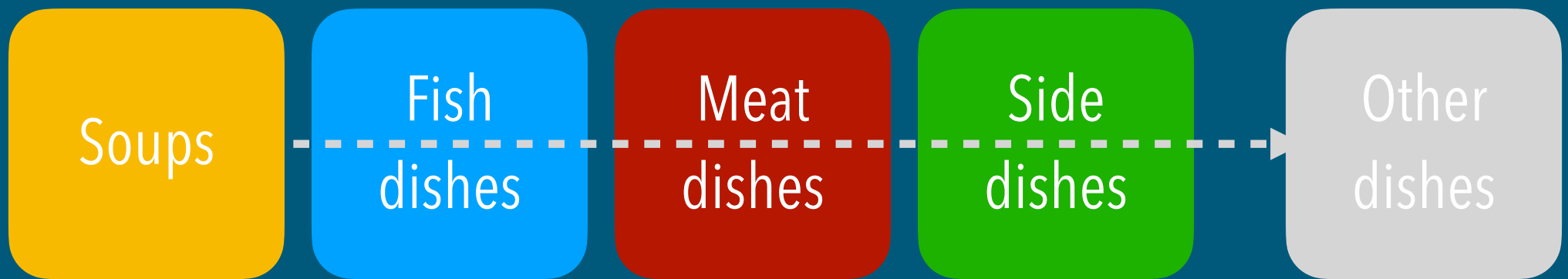
Viegas, 2013

Ansar, 2012

Wilson et al, 2016

objective

Develop formulations for salt reduction



Create a manual for the use of the formulations

1 - INIAV
Formula preparation
Characterising aromatic plants (Na and K)

3 types of formulations

- powder: mixture of grinder dehydrated aromatic plants
- paste: aromatic plants + other ingredients + aggregating element
- liquid: emulsion

2 - ESHTe
Select and characterise culinary preparations
Define mixtures
Use formulation in culinary preparations

Reformulate
Retest

Test formulations
Sensorial evaluation
NaCl measurement

Optimisation
Microencapsulation

Culinary preparations (traditional vs with formulation)
Sensorial evaluation
NaCl measurement

3 - ESTeSL
Real context experimentation
- children
- adults

final formulation

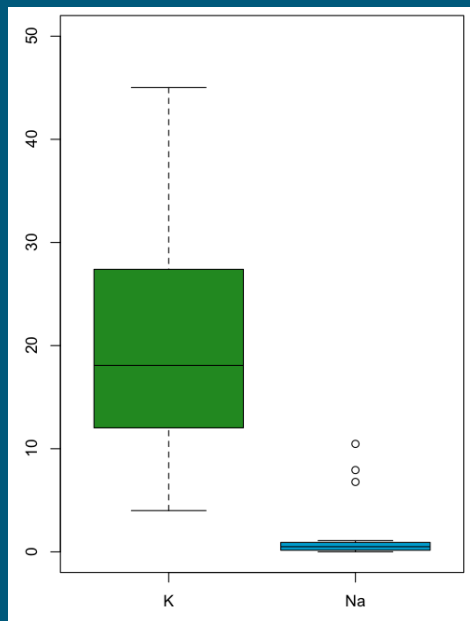
Sensorial evaluation
NaCl measurement

methodology

- Select variety of aromatic plants
 - Characterise aromatic plants - Na and K
-
- Select and group culinary preparations
 - Define mixture of aromatic plants / other ingredients

Aromatic plants

- *Apium graveolens*
- *Anethum graveolens*
- *Artemisia dracunculus*
- *Coriandrum sativum*
- *Foeniculum vulgare*
- *Mentha spicata*
- *Ocimum basilicum*
- *Petroselinum crispum.*
- *Rosmarinus officinalis*
- *Salvia officinalis*
- *Satureja montana*
- *Thymbra spicata*
- *Thymus caespititius*
- *Thymus x citriodorus*
- *Thymus fragantissimus*
- *Thymus mastichina*
- *Thymus vulgaris*
- *Zingiber officinale*



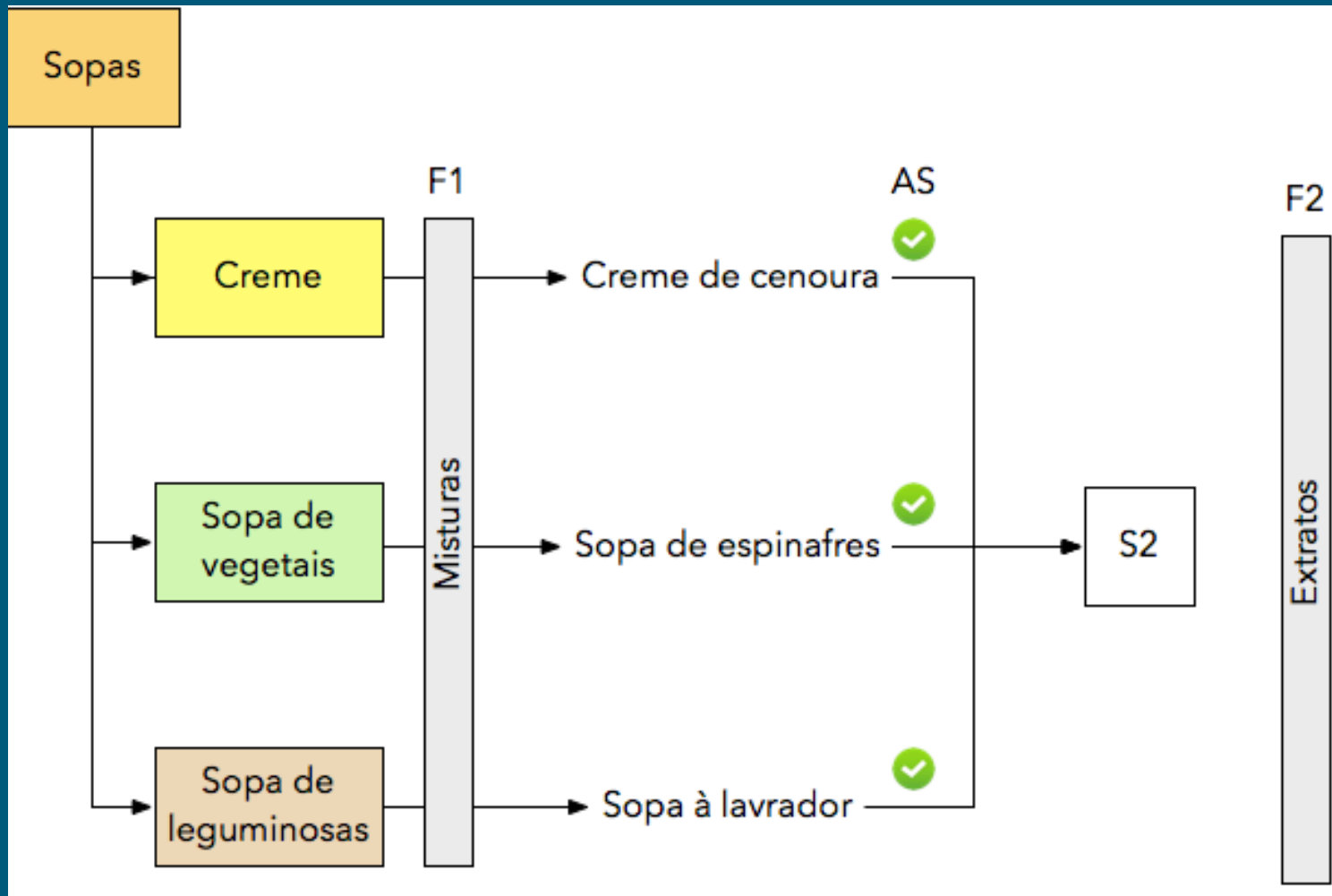
	K (mg/g)	Na (mg/g)
Min	4	0,01
1Q	12,03	0,16
Median	18,08	0,5
3Q	27,39	0,915
Max	45,02	10,47
Average	19,76	1,497

DRI

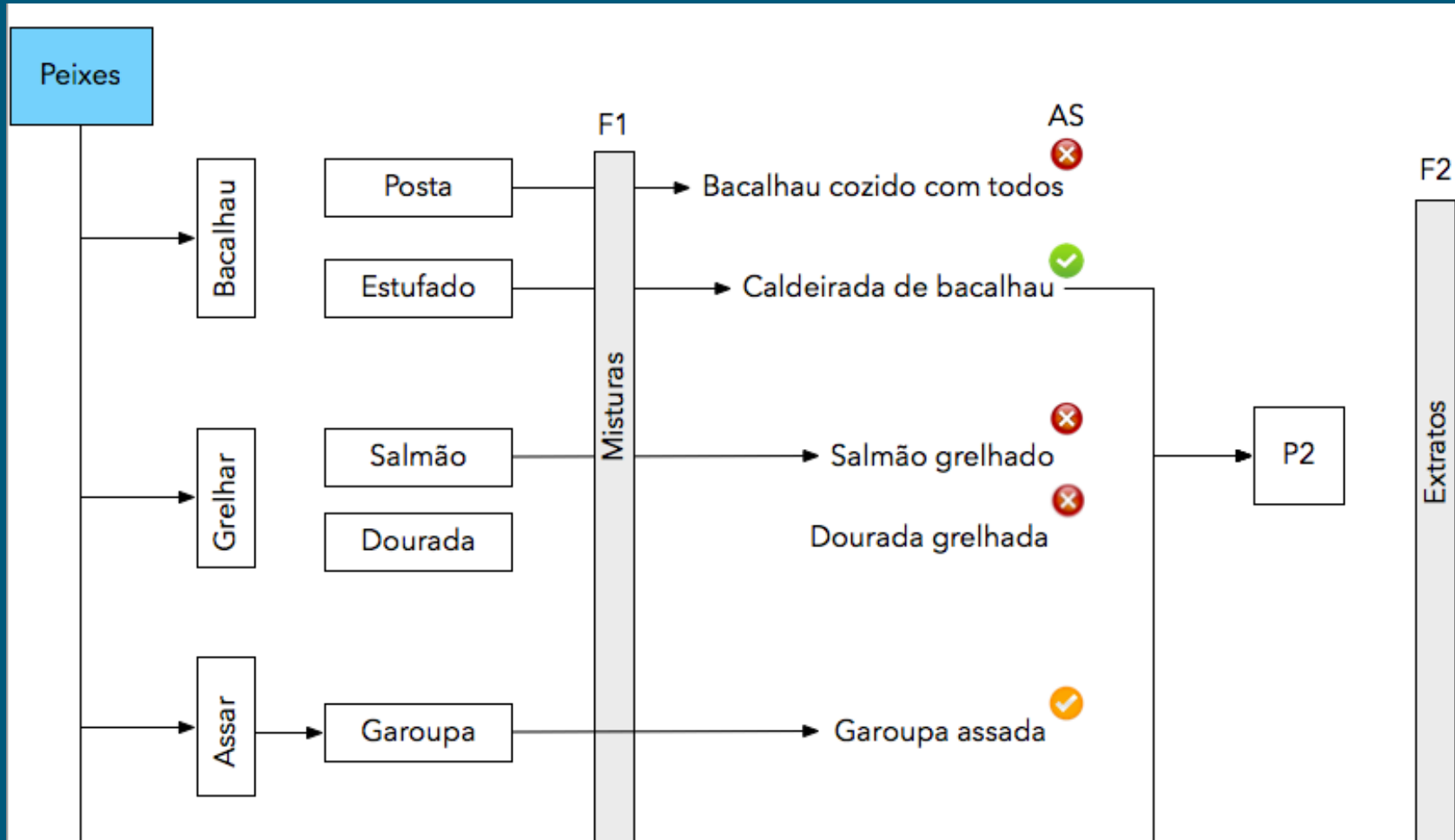
Al (mg)
4700

UL (mg)
2300

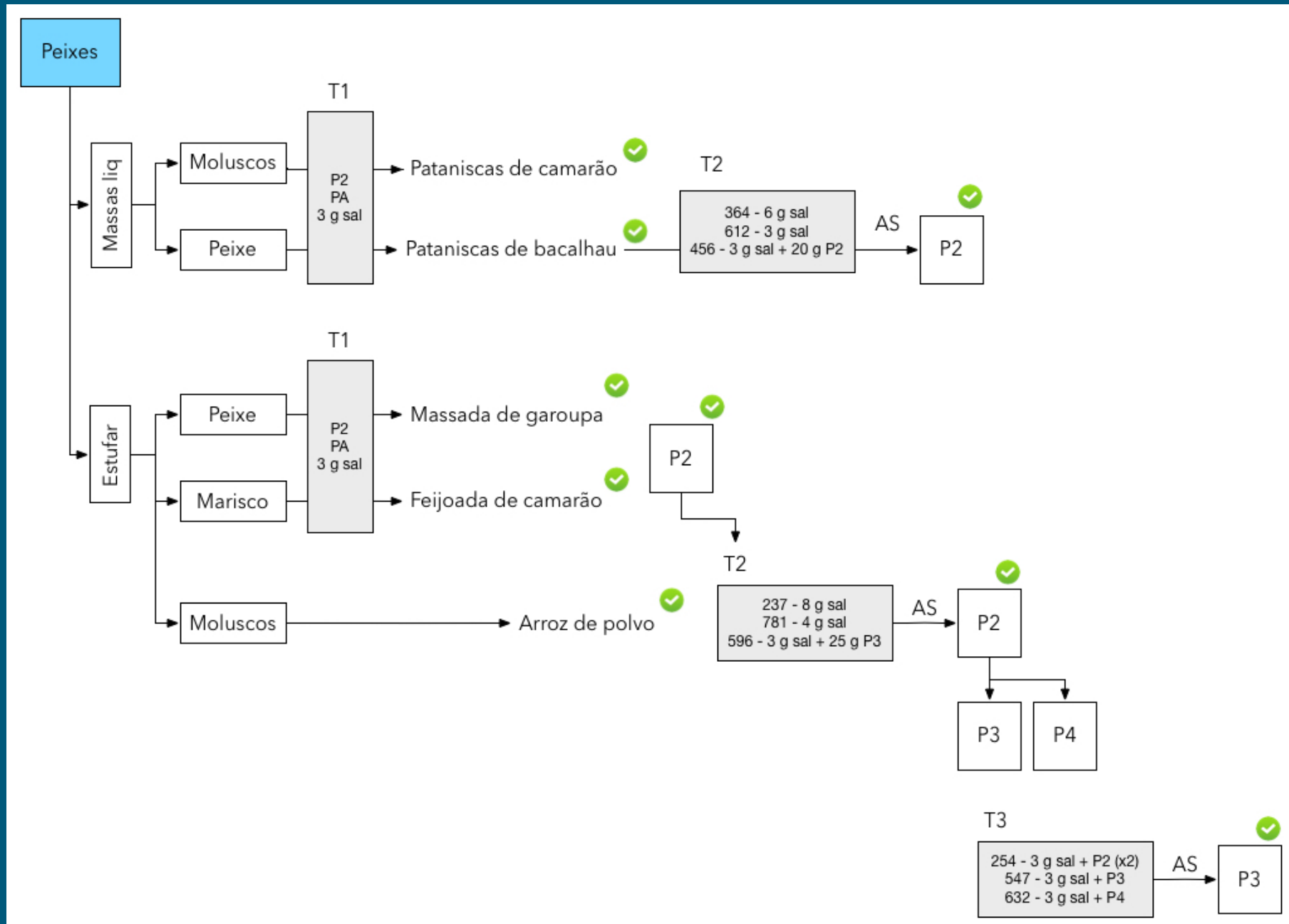
Culinary preparations



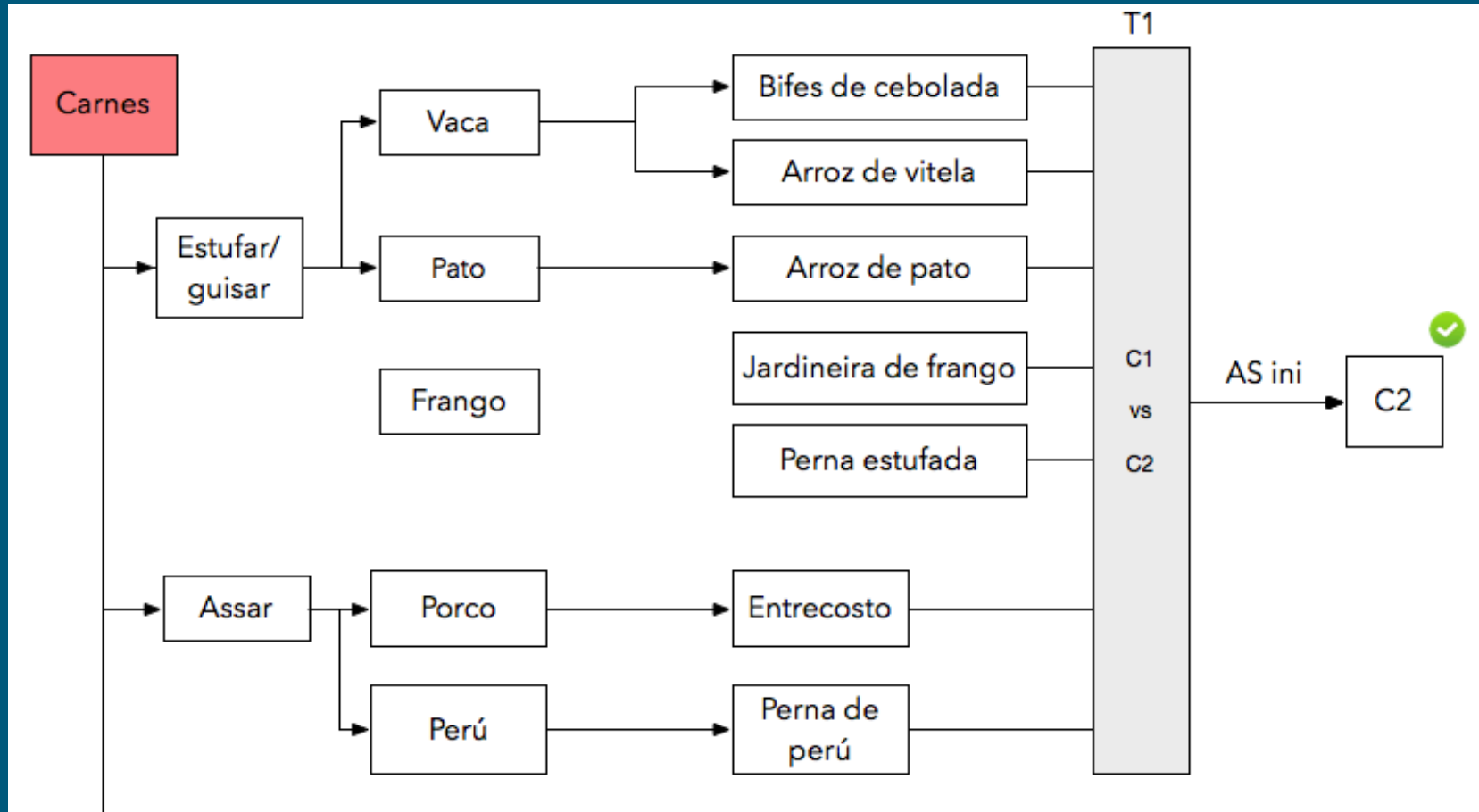
Culinary preparations



Culinary preparations



Culinary preparations



nexts steps...

- produce an extract from the mixture
- micro encapsulation
- test in culinary preparations

at the end ...

- Promote development of the agriculture sector - aromatic plants producers
- Explore new techniques such as dehydration and microencapsulation
- Create a specific formulation to integrate and use in salt reduction strategies
- Easy to produce, distribute and use
- Applicable to catering and home food preparation

Thank you



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