

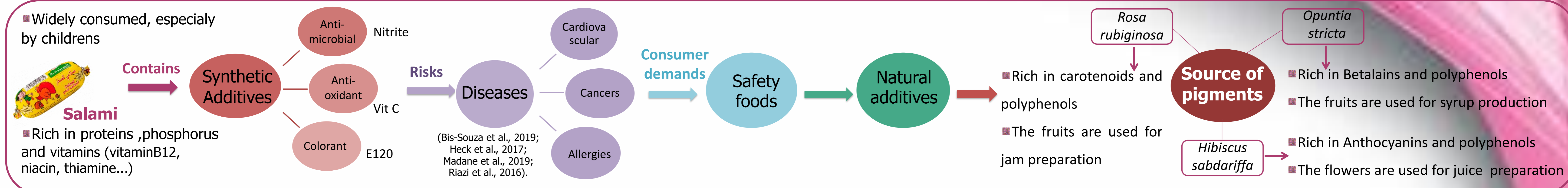
EFFECT OF USING NATURAL COLORANTS EXTRACTED FROM *ROSA RUBIGINOSA* AND *OPUNTIA STRICTA* FRUITS AND *HIBISCUS SABDARIFFA* FLOWERS ON THE QUALITY OF SALAMI

Ismahen Essaidi^{1*}, *Najla Dhen*¹, *Basma Ghandri*¹, *Zohra Ben Cheikh*¹, *Jameleddine Ben Abda*¹ and *Messaoud Mars*¹

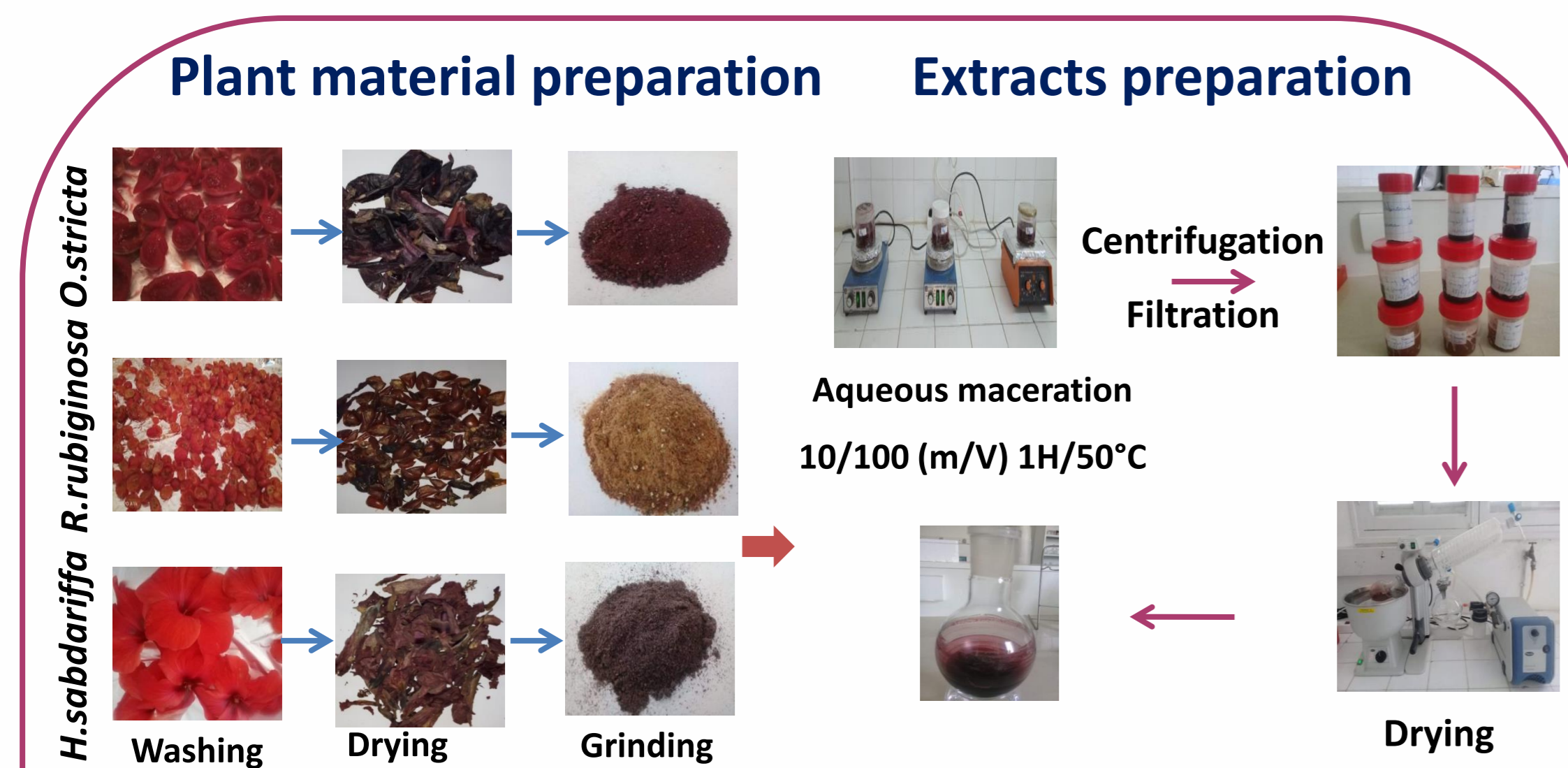
¹Research Laboratory of Agro-biodiversity and Eco-toxicology, High Agronomic Institute of Chott Meriam 4042, University of Sousse, Sousse, Tunisia

* Corresponding author: saidi.ismahen@gmail.com

Introduction

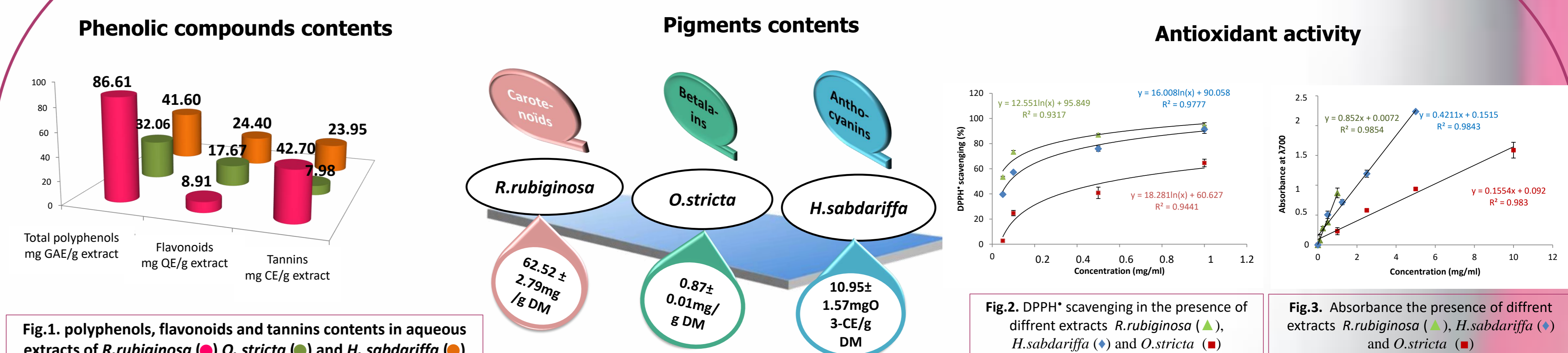


Material and Methods



Results and Discussion

Plant extracts characterization



Phenolic compounds contents

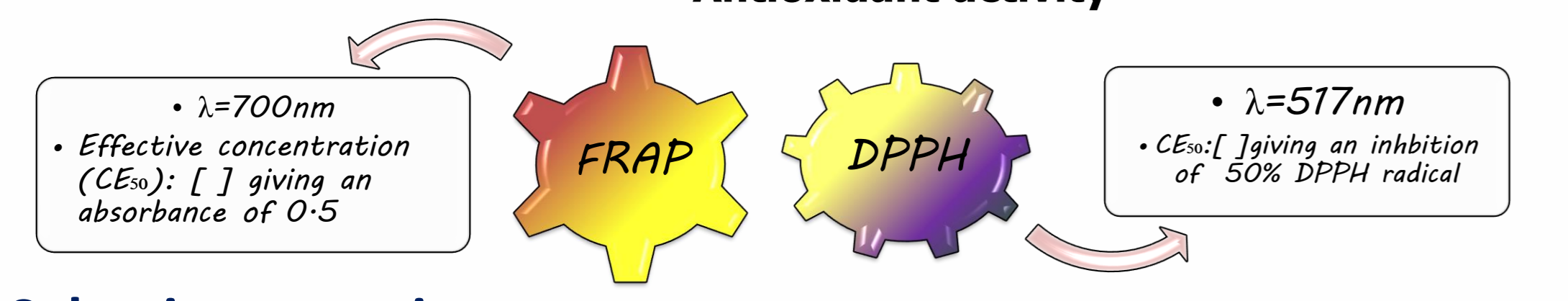
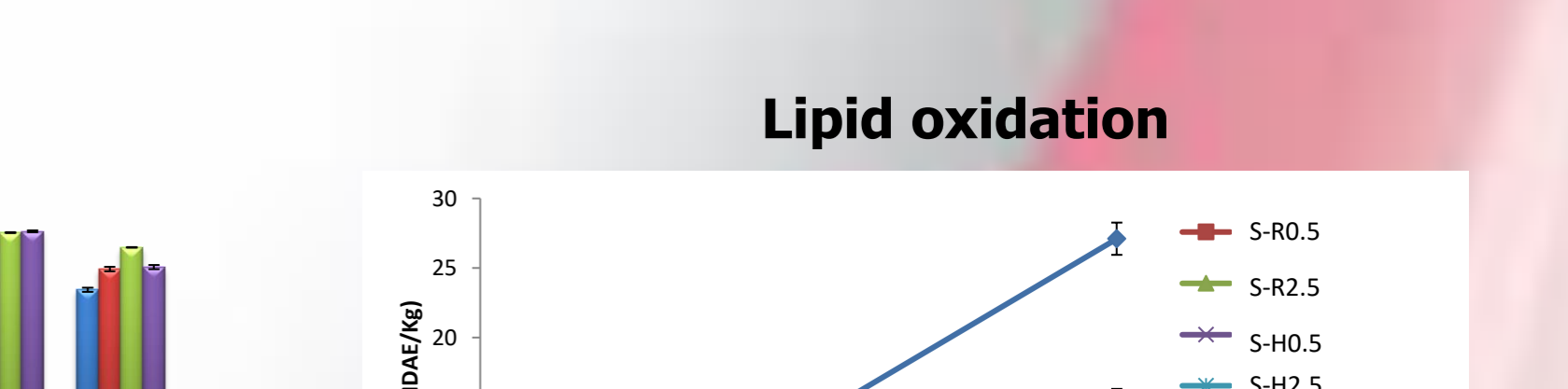
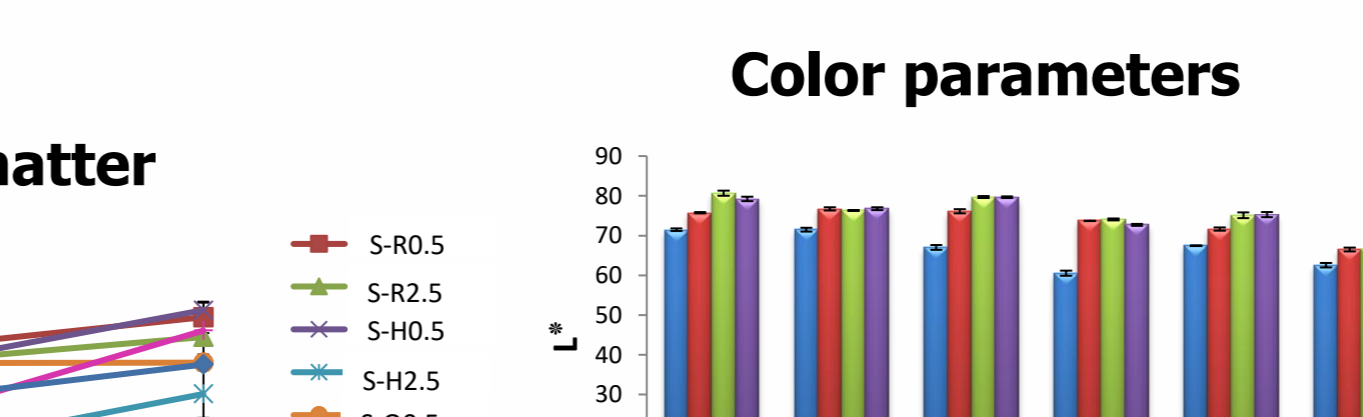
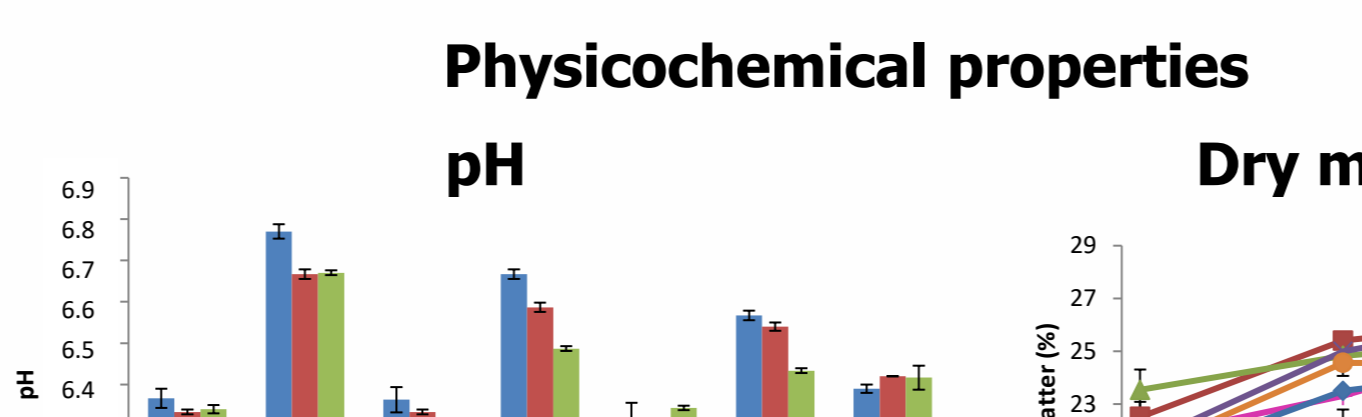
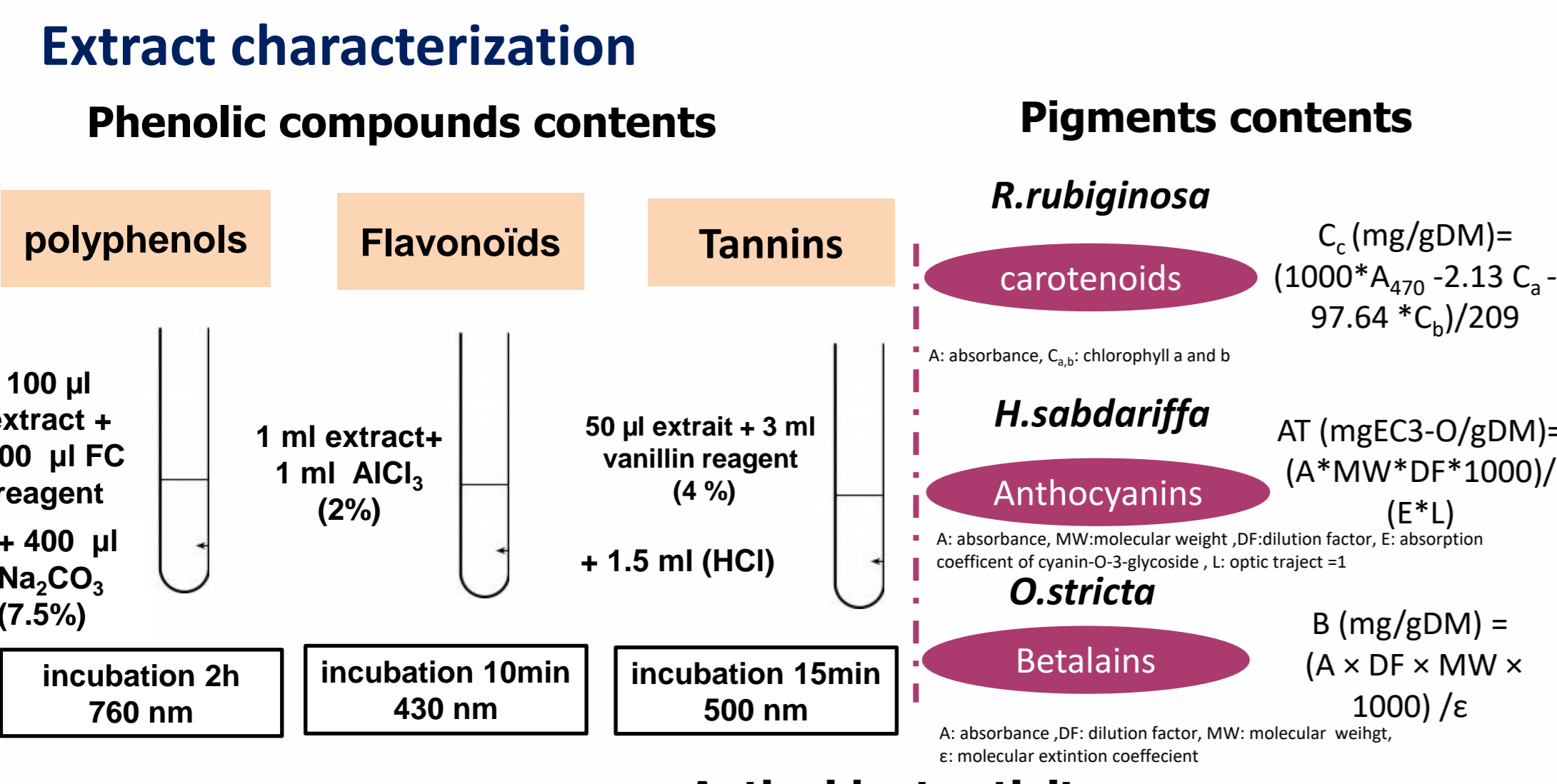
- ALL the extracts presented important quantities of phenolic compounds
- The *R. rubiginosa* renfermed the highest amount of polyphenols which was around 86.61 mgGAE/g of extract.

Pigments contents

- Different pigments are present in the studied plant material the *R. rubiginosa* fruits are rich in carotenoids, *O. stricta* fruits are characterised by the presence of betalains and the *H. sabdariffa* pigments are anthocyanins.

Antioxidant activity

- All the extracts showed an important capacity for DPPH radical inhibition and ferric reducing power depending in their concentrations.
- For both tests the *R. rubiginosa* extract was the most effective with the EC₅₀ values of 0.045 and 0.573 mg/ml for DPPH and FRAP methods respectively.



Physicochemical properties

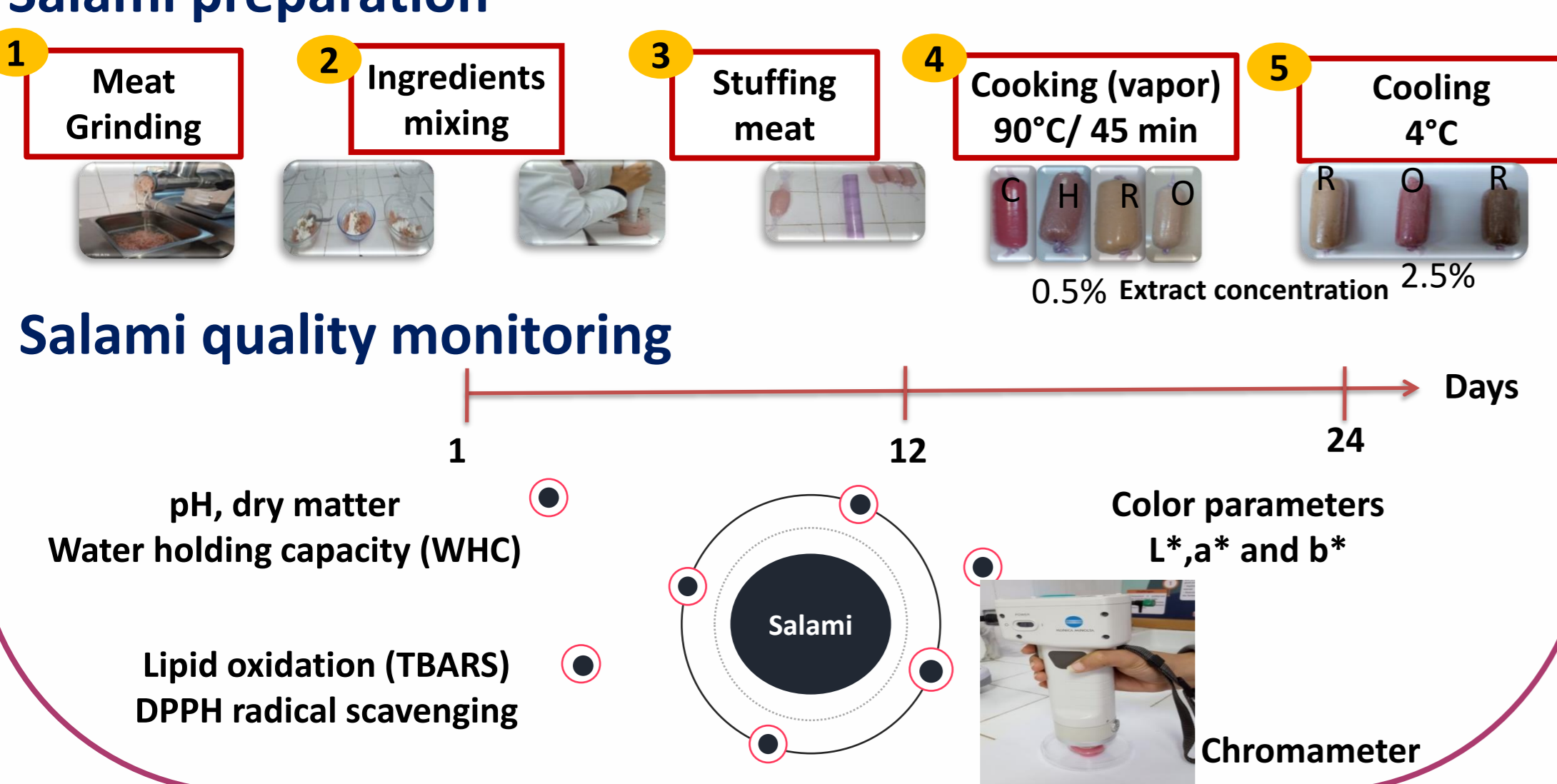
- The pH values of all samples decreased during storage.
- The concentration of 2.5% of extract increased the initial pH.
- The dry matter values increased during storage for all samples.

Color parameters

- The tested samples presented L* and b* values greater than the control.
- The a* values in the control were significantly higher than the tested samples.
- Before cooking the a* value of *O. stricta* sample was the highest however after cooking that of *H. sabdariffa* was the highest.

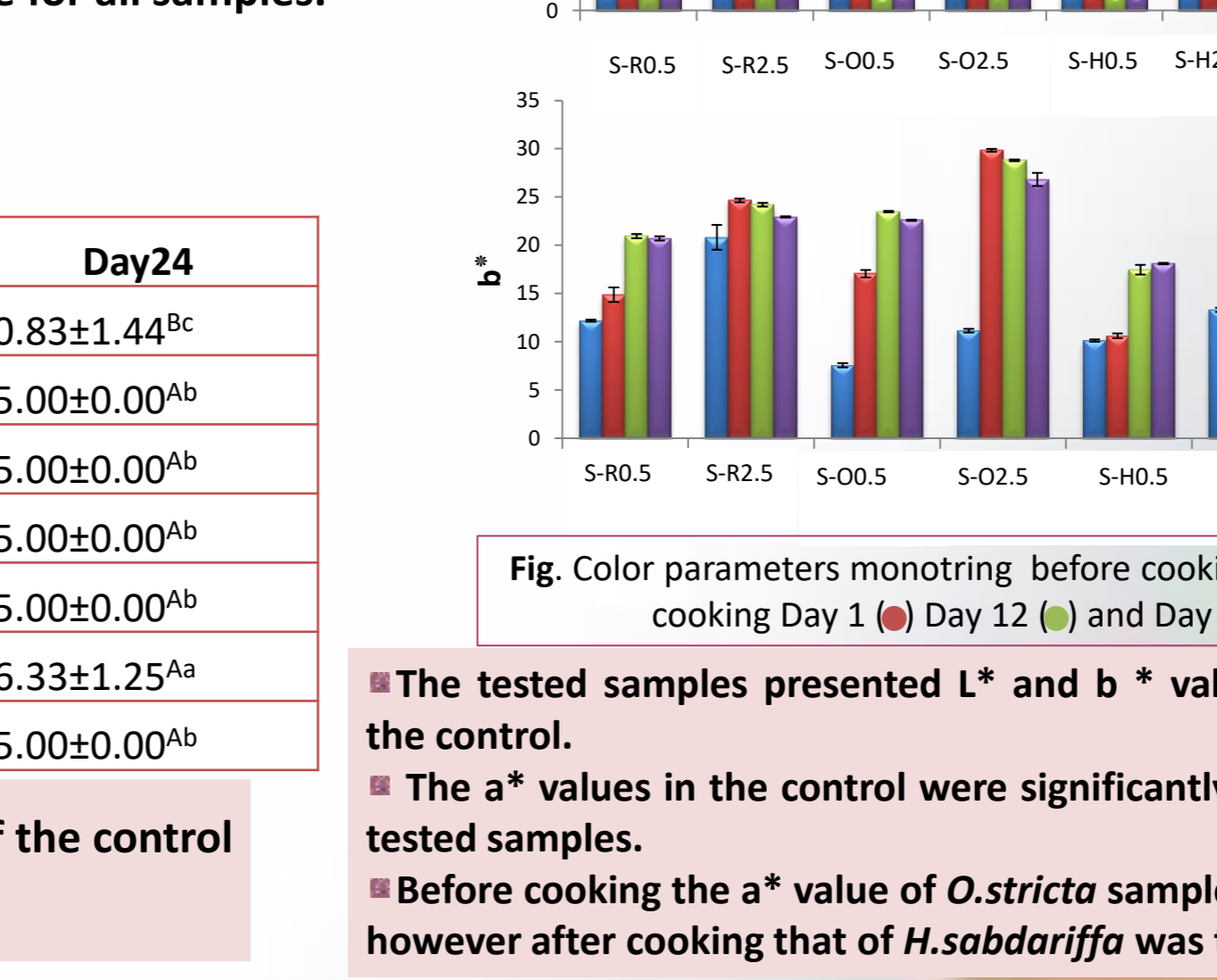
Lipid oxidation

- The TBARS values increased for all samples during storage.
- The samples with plant extracts were more stable.



WHC

Salami	Day 1	Day 12	Day 24
Control	25.00±0.00 ^{Ab}	24.16±1.44 ^{Ab}	20.83±1.44 ^{Bc}
S-R 0.5%	22.5±2.50 ^{Be}	25.00±0.00 ^{Aa}	25.00±0.00 ^{Ab}
S-R 2.5%	24±1.32 ^{Ac}	25.00±0.00 ^{Aa}	25.00±0.00 ^{Ab}
S-O 0.5%	26.33±1.25 ^{Aa}	22.5±2.50 ^{Bc}	25.00±0.00 ^{Ab}
S-O 2.5%	25.00±0.00 ^{Ab}	25.00±0.00 ^{Aa}	25.00±0.00 ^{Ab}
S-H 0.5%	23.33±1.44 ^{Bd}	25.00±0.00 ^{Aa}	26.33±1.25 ^{Aa}
S-H 2.5%	25.00±0.00 ^{Ab}	25.00±0.00 ^{Aa}	25.00±0.00 ^{Ab}



DPPH radical scavenging

- The prepared salami presented a stable radical scavenging capacities during storage.
- No significant differences were observed between plant extracts and different doses.

Conclusion

- Aqueous extracts of the studied plants are rich in phenolic compounds and pigments which allowed them an important antioxidant activity. the *R. rubiginosa* was the most effective extract for DPPH radical scavenging and ferric reducing power.
- The addition of plant extracts in salami preparation as a food colorants showed that *O. stricta* gives the most appreciable color for salami before cooking. however the *hibiscus* extract is the most stable colorant at heat treatment.
- The addition of plant extracts can improve the quality of salami namely the oxidative stability and the antioxidant properties.
- The use of encapsulated food dye could be a solution for their stability under heat treatment.

References

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