AGRITECH: FROM SUSTAINABLE TOMATO CULTIVATION WITH BIOSTIMULANTS TO THE PRODUCTION OF TOMATO SAUCES

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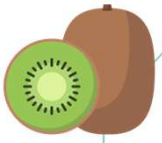
SPOKE, WP AND TASK

8.1.1 - Valorisation of the waste by green chemistry to obtain high value molecules or new products
8.1.2 - Valorisation of the waste by biotechnology processes to obtain for high value molecules or new products

BACKGROUND, INTRODUCTION & AIM OF THE WORK

- Tomato is an high economical value crop;
- Tomato is sensitive to abiotic stresses (draught);
- *Biostimulants* could be useful tools for stress-resistance;
- 4 new *biostimulants* by undersized kiwi biomass were produced.



kiwi Juice production → **Juice** (T4)
kiwi Juice production → **Fermented Biomass** (T3)
kiwi Juice production → **Fermented Lysate Biomass** (T5)
kiwi seeds → **Proteic Hydrolyzate** (T6)

- Assessement of the technological quality of tomatoes (grown with *sprayed-on-leaves treatments*) and subsequent sauces.

MATERIALS & METHODS WORKFLOW

Residual kiwi biomasses

Biostimulants (T3 to T6), water (T1) or Se (T2) leaf spray

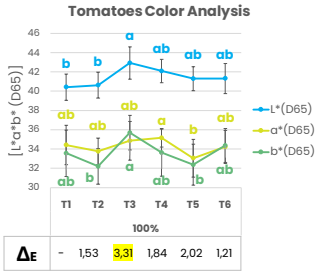
Tomato cv Heinz 1301

Irrigation 30%, 60% or **100%**

Physico-chemical tomato analyses: **Color** analysis (CIELab), **Texture** analysis (peel & mesocarp penetration tests), **Image** analysis (morphological characteristics)

Physico-chemical tomato sauces analysis: **Color** analysis (CIELab), **Quality** analysis (MC%, pH, Titr. Acidity, TSS), **Rheological** analysis (Bostwick consistency, Thixotropic behaviour)

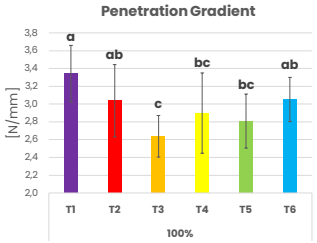
RESULTS & GRAPHS

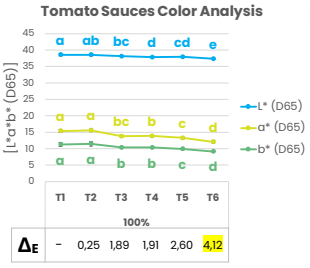


- **Color analysis** on tomatoes from **100% water regime** highlighted significant differences.
- **T3** showing yellower color represented by an **higher b* value**.
- Considering **ΔE** value, **T3 100% resulting >3** compared to T1 100% (H_2O), indicating a **color difference** perceivable by the human eye.

- **Total Soluble Solids (%)** on tomatoes from **100% w.r.** showed no significant differences with an average value of 5,0±0,6.

- **Texture analysis** on tomatoes from **100% w.r.** presented significant differences.
- T3 and T5 samples with the lower penetration gradient indicating a weaker system solidity opposite to the probe penetration compared to the STD (T1).

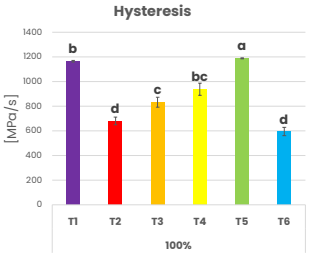




- **Color analysis** on **100% w.r.** tomato sauces showed different results compared to the relative tomatoes.
- Considering **ΔE** value, **T6 100% resulting >3** compared to T1 100% (H_2O), indicating a **color difference** perceivable by the human eye, due to lower values for all 3 parameters (L*a*b*).

- **Total Soluble Solids (%)** analysis on tomato sauces from **100% w.r.** showed significant differences developed after the sauce production process. (T1 & T3 significantly higher compared to other treatments)

- **Rheology Thixotropic analysis** on tomato sauces from **100% w.r.** showed significant differences.
- T1 and T3 samples highlighting an higher hysteresis value indicating a reorganization of the system during the Thixotropy test.



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