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KIWI WASTE BIOMASS AS A BIOSTIMULANT FOR TOMATO CULTIVATION UNDER WATER STRESS CONDITIONS

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8.1.1 , 8.1.2

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

INTRODUCTION

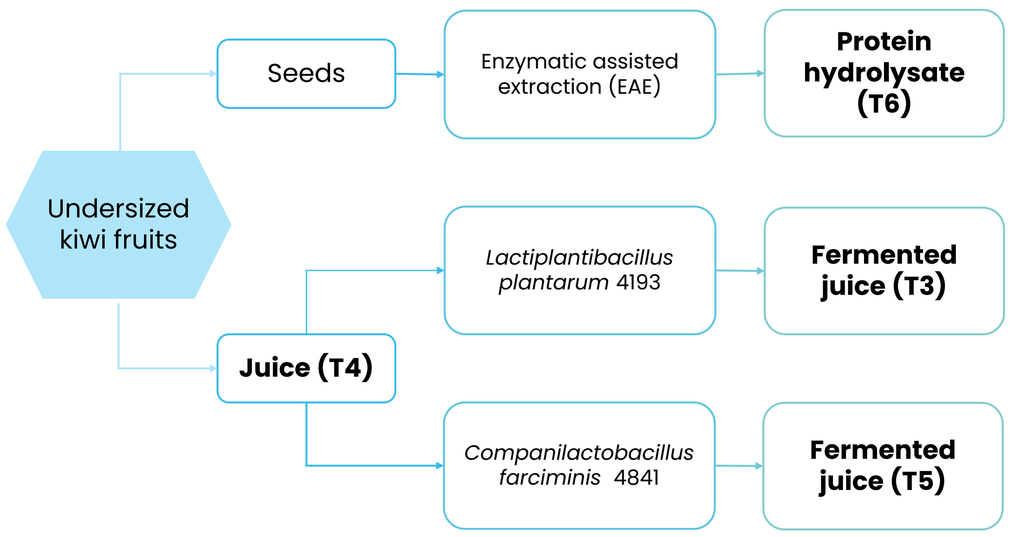
Tomato (*Solanum Lycopersicum* L.) is one of the most produced vegetable worldwide with high water demands**. Limited water resources** for irrigation may affect tomato growth, yield and quality for its drought sensitivity. Water stress tolerance may be improved by **biostimulants**.

AIM

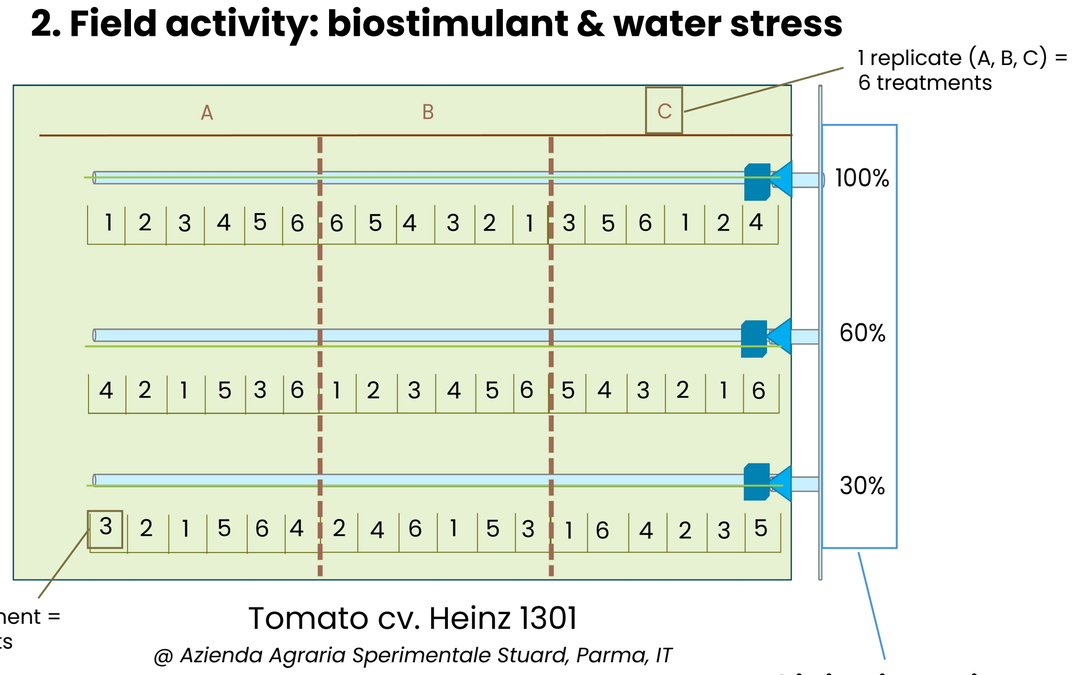
The aim is to investigate the effect of biostimulants obtained from undersized kiwi fruits on tomatoes grown from plants under different irrigation regimes

MATERIALS AND METHODS

1. Biostimulant production



2. Field activity: biostimulant & water stress



Tomato cv. Heinz 1301

@ Azienda Agraria Sperimentale Stuard, Parma, IT

ID	Treatment	ID	Treatment
1	Water	4	Non-fermented juice
2	Selenium	5	Fermented juice
3	Fermented juice	6	Protein hydrolysate

Leaf spray application (4 times in July)

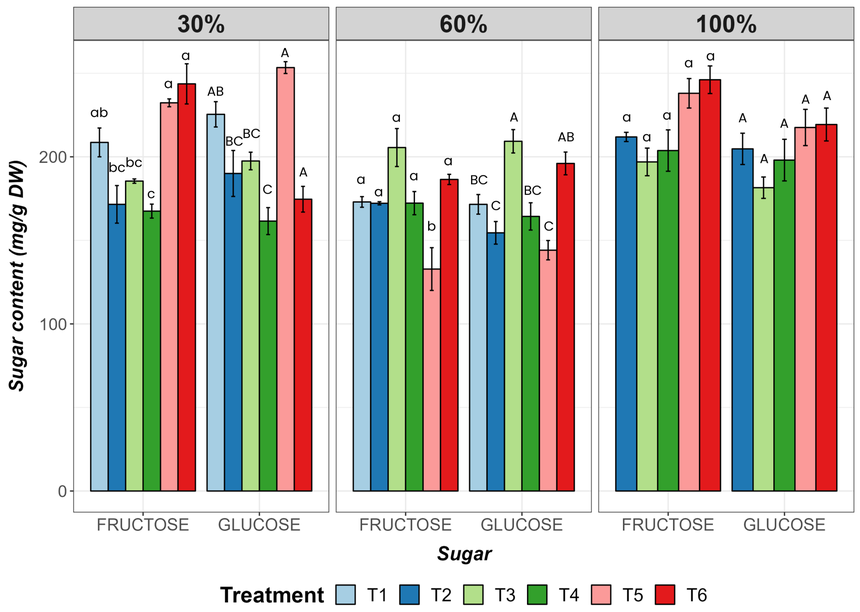
3. Fruit characterization

- ° Brix
- Morphological measurements
- Total polyphenol content
- Antioxidant activity (DPPH essay)
- Proximate composition and free UHPLC-MS amminoacid profile
- Sugar content
- Organic acids content
- Carotenoids content
- Lycopene

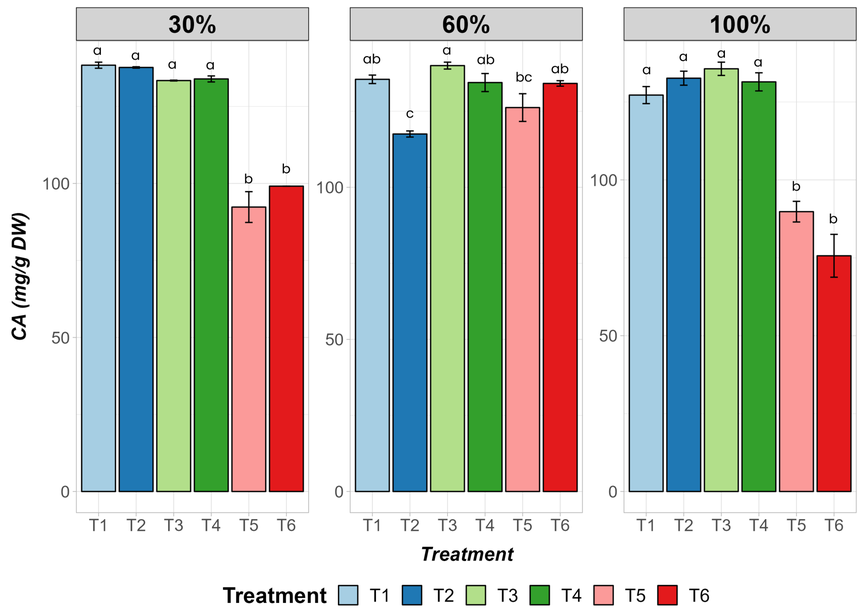
Hand harvesting in mid-September

RESULTS

Sugar content (glucose and fructose)



Citric acid content



Tukey's test, $p<0.05$

SUGARS

- Differences in both glucose and fructose content due to treatments in stressed tomatoes
- No differences under full irrigation conditions

CITRIC ACID

- T5 and T6 resulted in significant lower citric acid content at 30% and 100% irrigation
- Greater variability under 60% irrigation due to biostimulants

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