



Herbicide application in relation to chlorophyll fluorescence, leaf yield and polyphenol contents in artichoke (*Cynara cardunculus* L.)



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INTRODUCTION

- Traditional vegetable crop of south european countries
- Leaves contain high percentage of Polyphenols used for medicinal purpose
- Wide inter and intra row spaces provide weeds good chance to flourish and suppress crop growth
- Herbicides may affect fluorescence ability and ultimately photosynthetic yield

MATERIAL AND METHODS



Herbicidal Treatments

Treat.	Brand Name	Common Name	Dose (L ha ⁻¹)
1	Control (Mechanical weed control)		
2	Gallant Super	Haloxypop	1.0
3	Kontkat 320 SC	Phenomedipham	1.5
4	Lentagran WP	Pyridat	1.0
5	Targa Super	Qizalofop-P	2.0
6	Boxer	prosulfocarb	5.0

Site environmental data (2006):

Soil: Loamy sand

Av. Precipitation: 675 mm

Av. Temp.: 9.7 °C

❖ Herbicides applied after germination

Experimental Data

Design	RCBD with 4 replications
Experimental year	2006
Study factor	Herbicide
Cultivar	Gobo di Nizza
Samples	Dried leaves (35-40 °C)
Lab. analysis	HPLC modified method (Brand & Weschta, 1991)



RESULTS

Fig. 1: Dry matter (percent) in relation to herbicide application

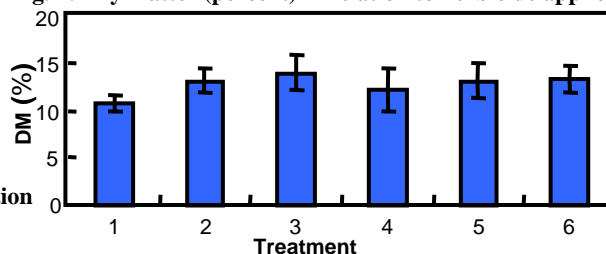
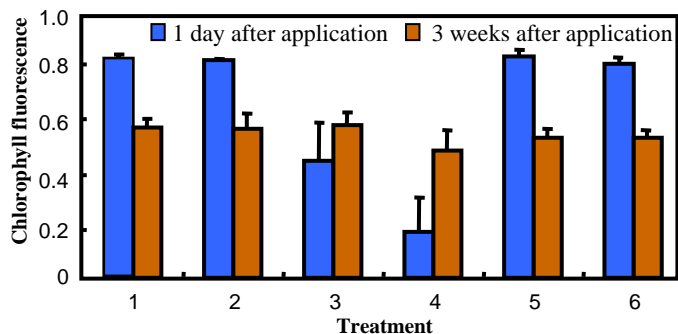


Fig. 2: Chlorophyll fluorescence in relation to herbicide application



- Chlorophyll fluorescence dropped rapidly in Pyridat followed by Phenomedipham (Fig. 2)
- Plants recovered stress 3 weeks after herbicidal application showing normal chlorophyll fluorescence (Fig 2)
- Herbicidal treatments showed non significant effect on polyphenols and percent dry matter in artichoke (Fig. 1 & 3)

Fig. 3: Polyphenolic contents in relation to herbicide application

