



Topic:

«ROLE OF BIOACTIVE MOLECULES AND PHYTONUTRIENTS IN ANTIOTBIOTIC-FREE (ABF) AND NO-ANTIBIOTIC EVER (NAE) PRODUCTIONS.»

BACKGROUND

The emergence of antibiotic resistance in zoonotic enteropathogens led the livestock industry to promote ABF and NEA productions. This opens to new prospective for the use of organic acids and botanicals in animal productions for their antimicrobial properties.

In vitro

Bacteria strains isolated from broilers liver:

- *Salmonella enteritidis*
- *Escherichia coli*

Substances tested:

- Organic acids (OA): citric, sorbic, benzoic, butyric, caprylic, capric, caproic acids.
- Nature-identical compounds (NIC): thymol, carvacrol, vanillin, eugenol.
- Antibiotics (AB): amoxicillin, neomycin, colistin.

Methods:

- Microdilution method in Brain Heart Infusion broth (BHI).
- Inoculum of 10^5 cfu/mL.
- Statistical analysis with one-way ANOVA (significant at $p < 0.05$).

FIRST STUDY

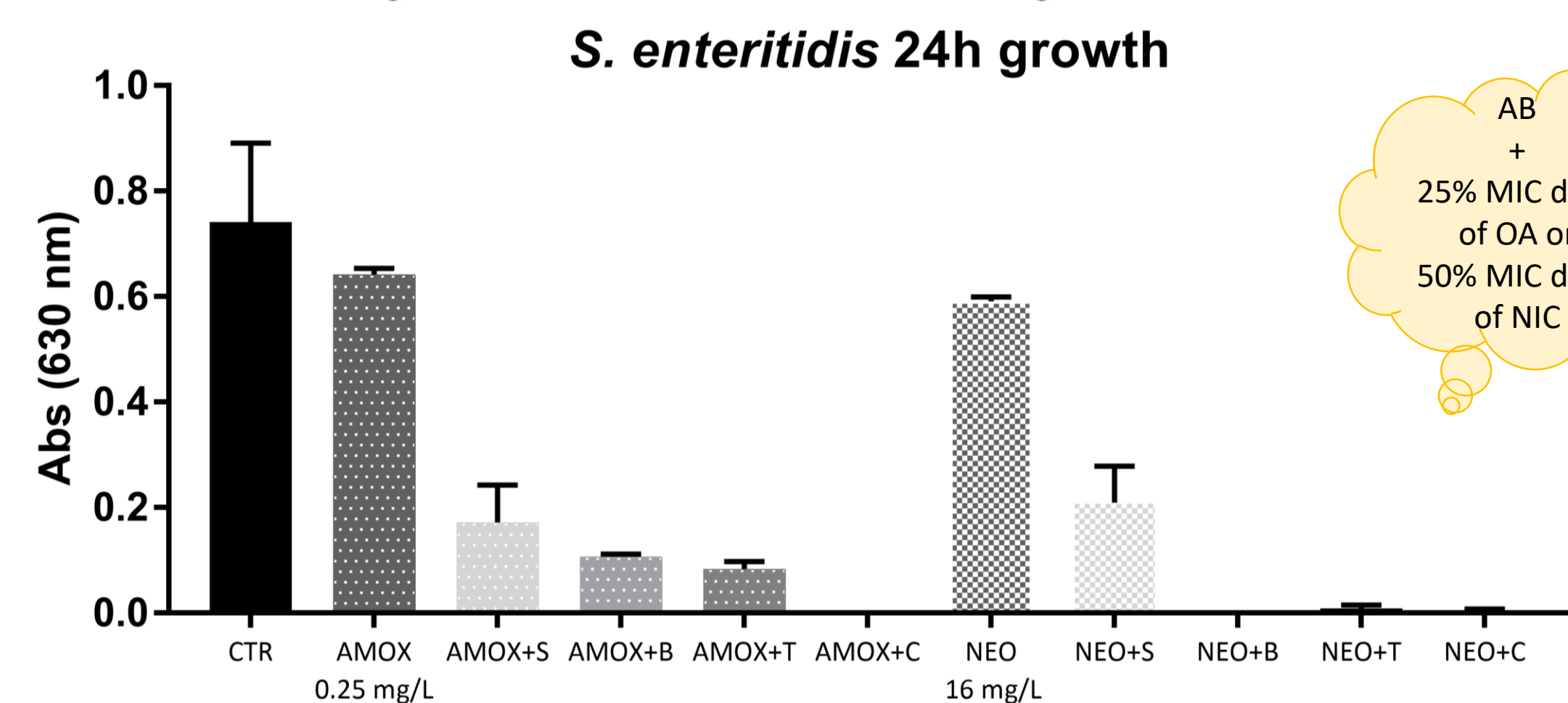
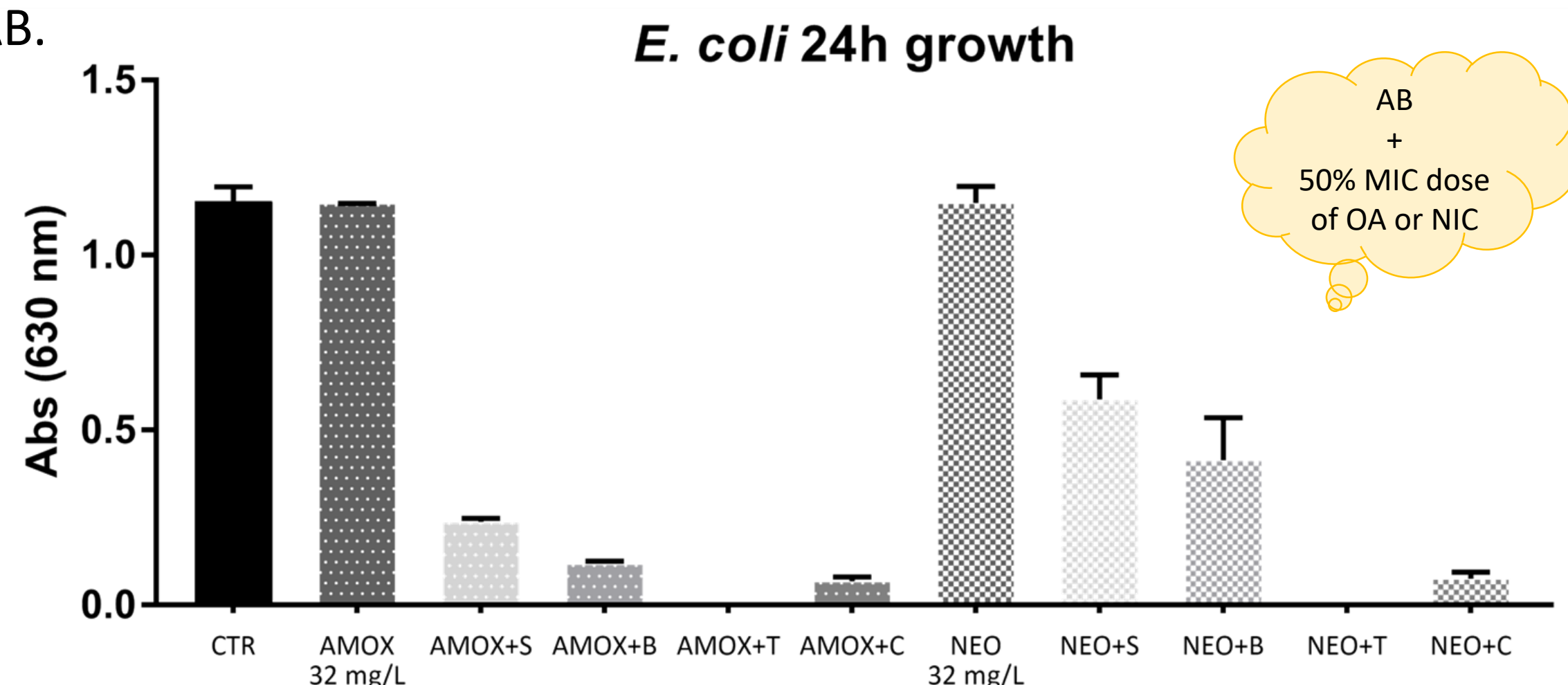


Aim of this study was to assess the ability of NIC (thymol-THY; carvacrol-CARV) or OA (sorbic-SOR; benzoic-BENZ) to increase the sensitivity of *E. coli* and *S. enteritidis* to broad spectrum AB.

Results

MIC		
	<i>E. coli</i>	<i>S. enteritidis</i>
AMOX	Resistant	1 mg/L
NEO	Resistant	128 mg/L
SOR	50 mM	50 mM
BENZ	50 mM	50 mM
THY	3.25 mM	1.87 mM
CARV	1.87 mM	1.87 mM

*MIC=minimal inhibitory concentration



Abstract accepted for:

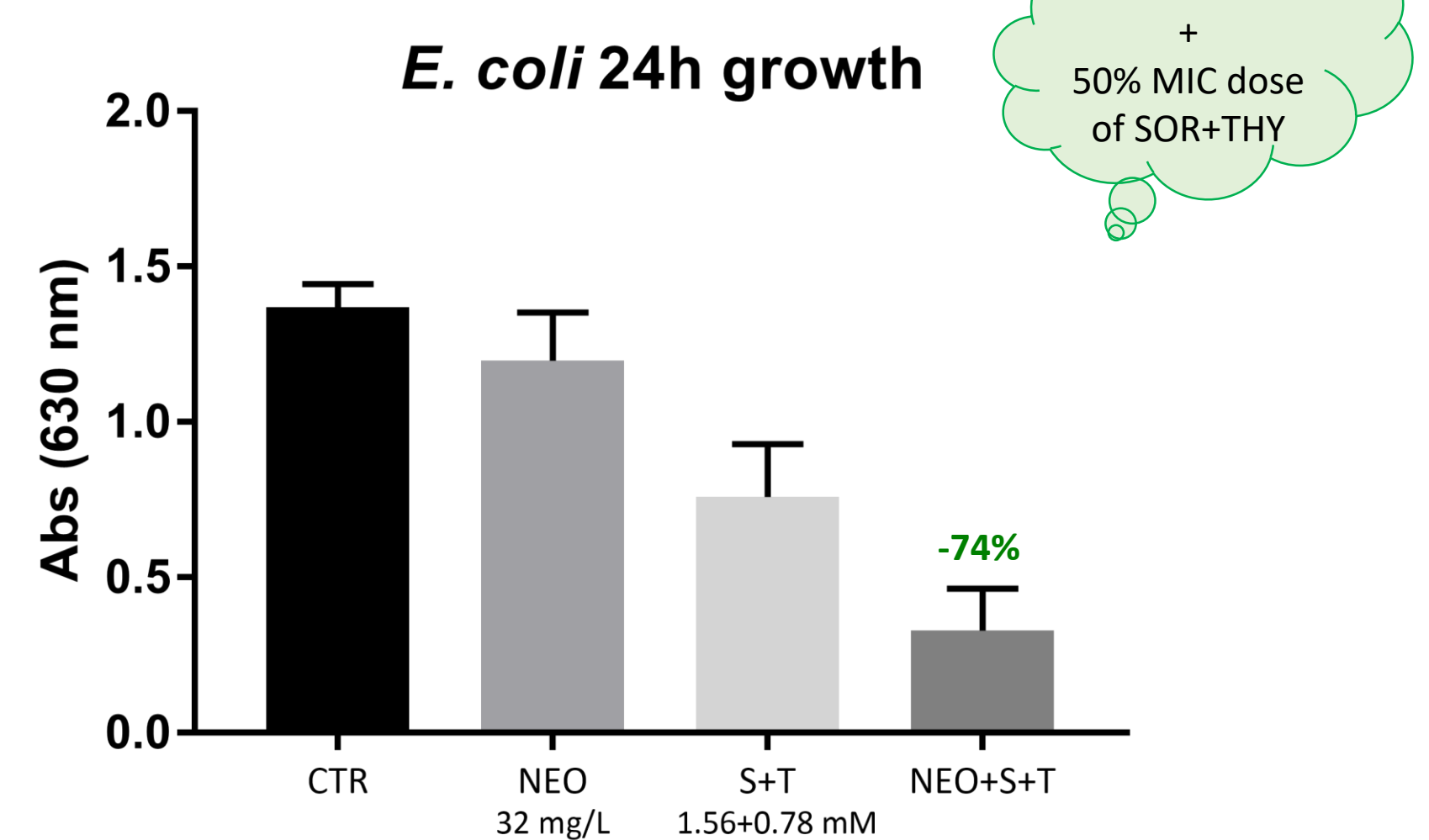
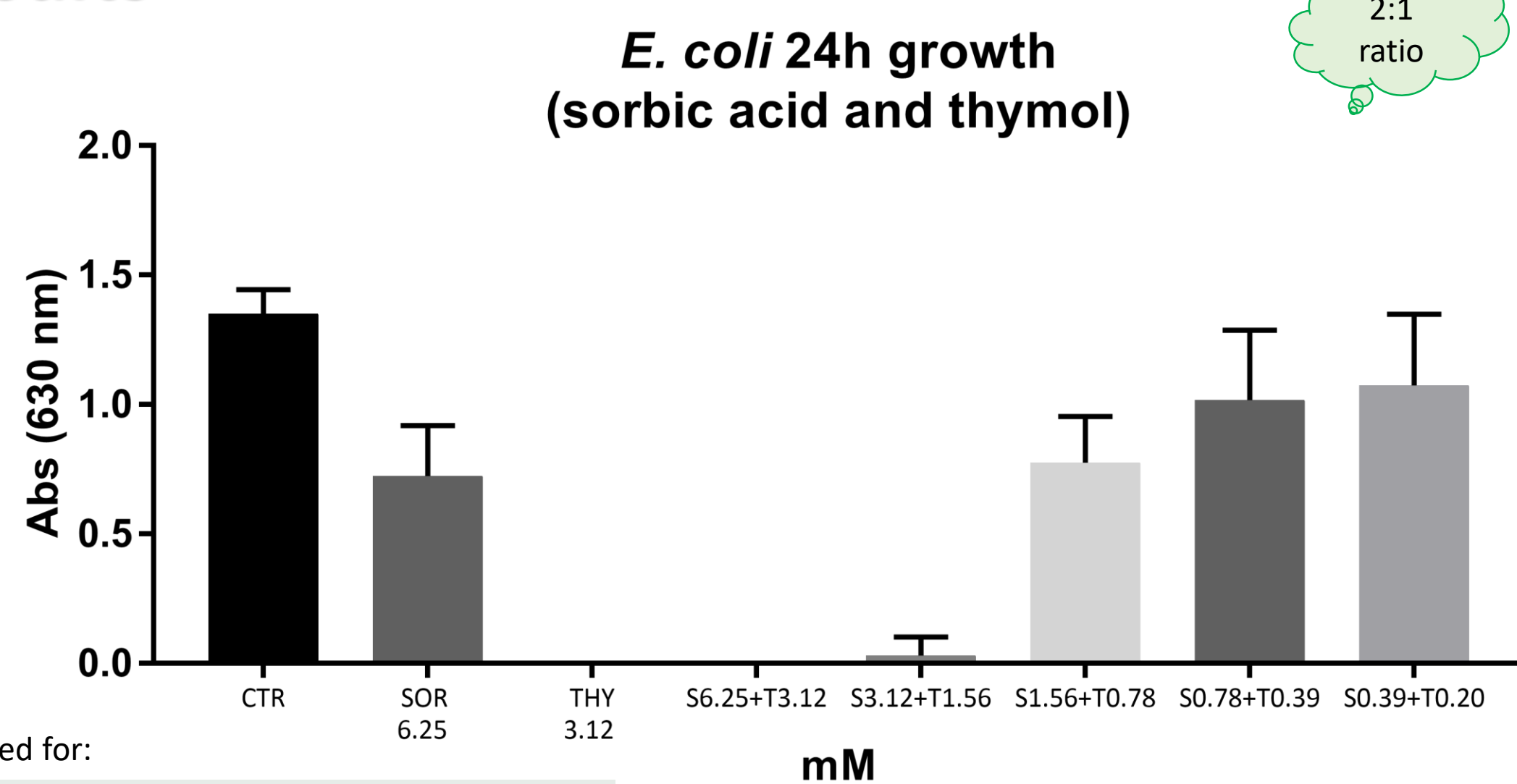


SECOND STUDY



Aim of this study was to evaluate the hypothesis that the efficacy of broad spectrum antibiotics against eight strains of *E. coli* can be improved by the addition of sorbic acid and thymol.

Results



Abstract accepted for:



CONCLUSIONS

The combination of organic acids and/or botanicals increase the bacteria susceptibility to broad spectrum antibiotics and the antibiotics efficacy against *S. enteritidis* and *E. coli*.