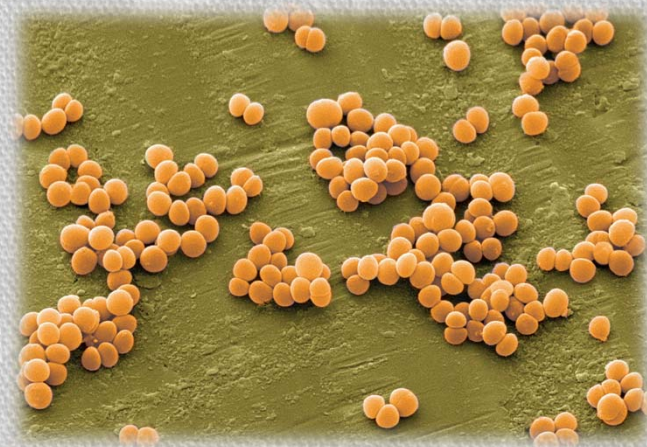


ANTIBACTERIAL EFFECTS OF
VARIOUS PLANT EXTRACTS SOLD
AS HERBAL SUPPLEMENTS
ON *STAPHYLOCOCCUS AUREUS*

Laura Martinez
Hannah Quackenbush
Marla Garrison

Staphylococcus aureus

- Opportunistic bacteria / normal flora
- Effects on the human body as bacterial infections
 - Boils
 - Urinary tract infections
 - Pneumonia
 - Toxic Shock Syndrome
 - Sepsis
- Multi-drug resistant strains



Potassium Diformate



- Feed additive in livestock in European Union (EU), Asia and Australia
- First approved non-antibiotic growth-promoter in the EU

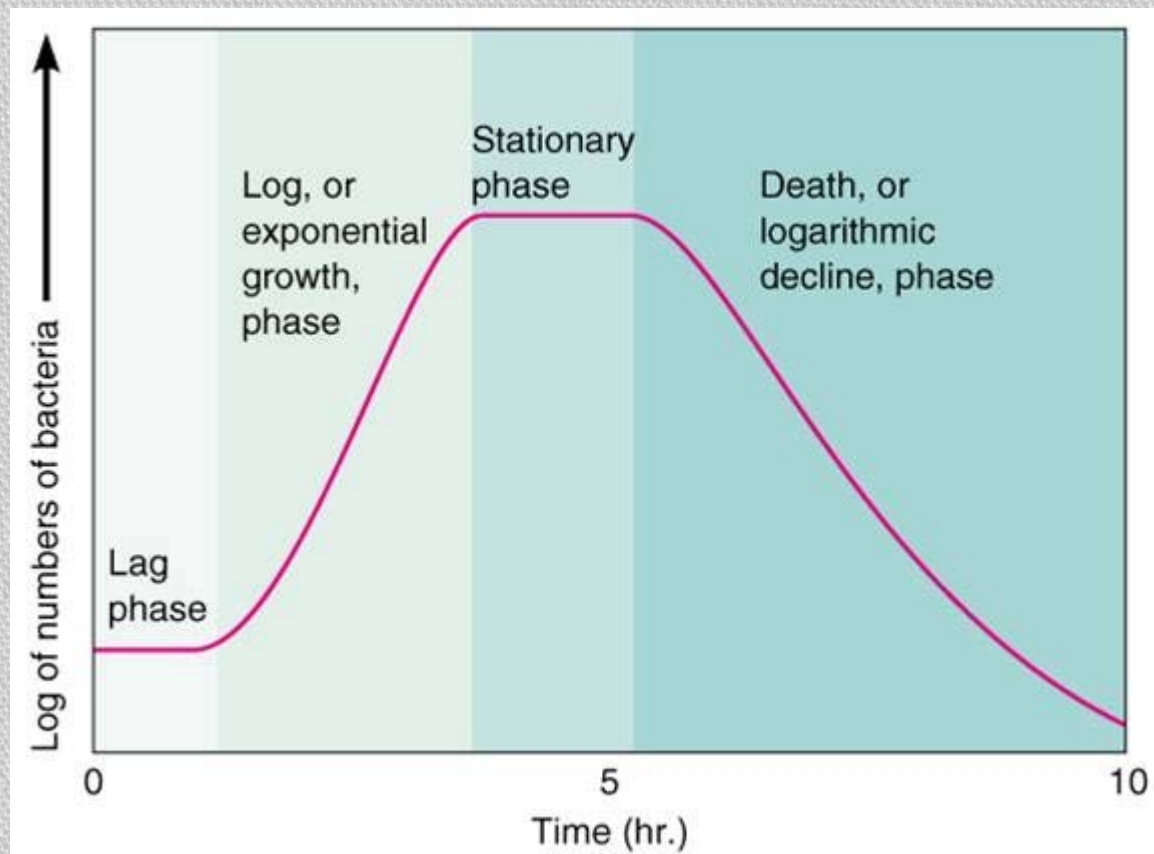
Plant Extracts as Supplements

- Claims
 - Green Tea –prevents cancer
 - *Echinacea* – colds, immunity
 - Licorice –bronchitis
 - Alfalfa –coughs
- Antimicrobial activity
 - Effects on *S. aureus*
- Unregulated
 - Dietary Supplement Health & Education Act of 1994



Growth Curve

Phases: Lag, Log, Stationary, Death

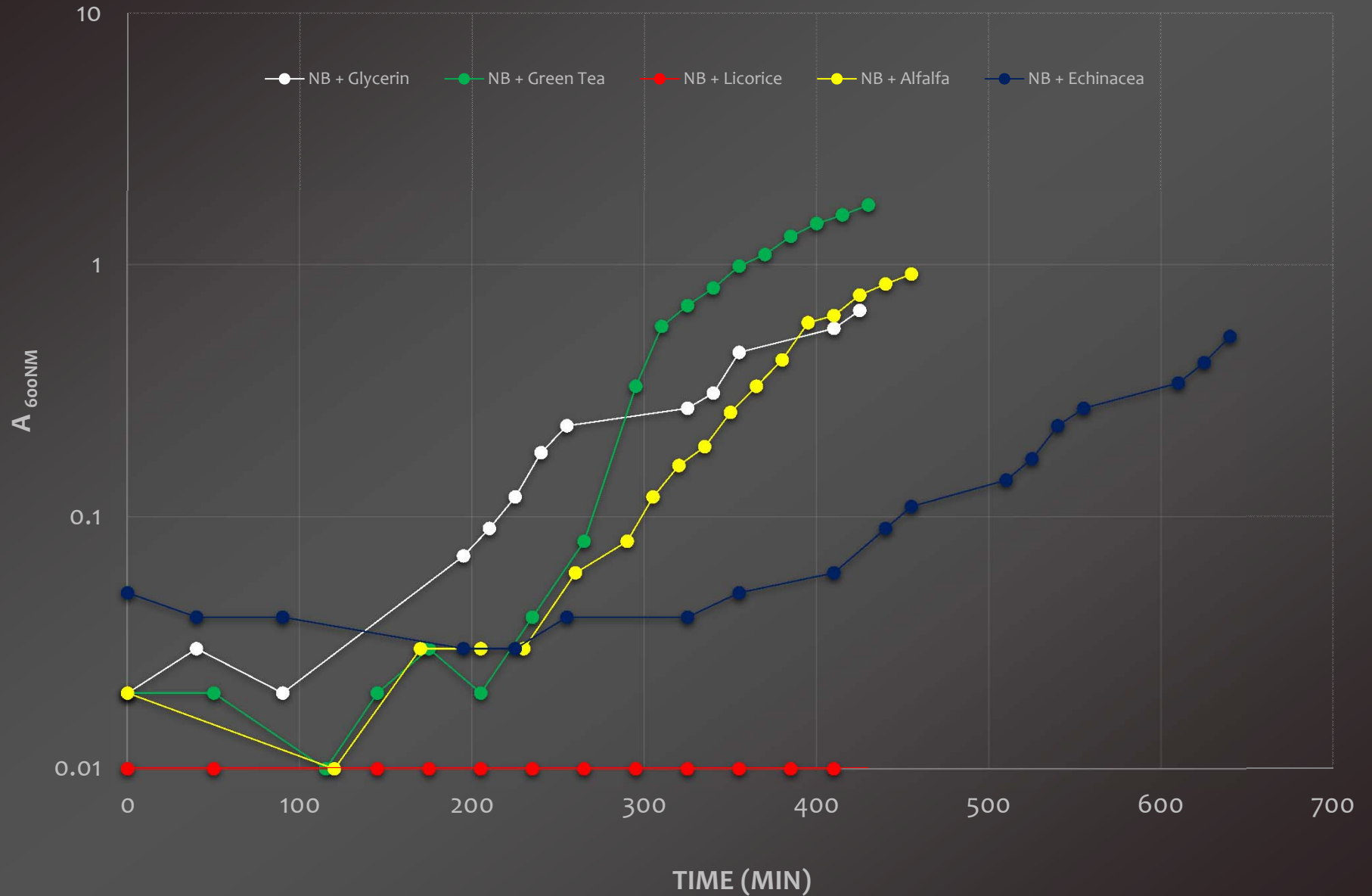


Growth Studies

- Side arm flasks
 - nutrient broth
 - manufacturers' recommended dose
- Shaking water bath –
 - 37°C
- Spectrophotometer
 - indicates number of cells



Growth of *S. aureus* in Presence & Absence of Various Plant Extracts



Diffusion Studies

Zones of Inhibition for Various Plant Extracts



Green Tea Plate



Licorice



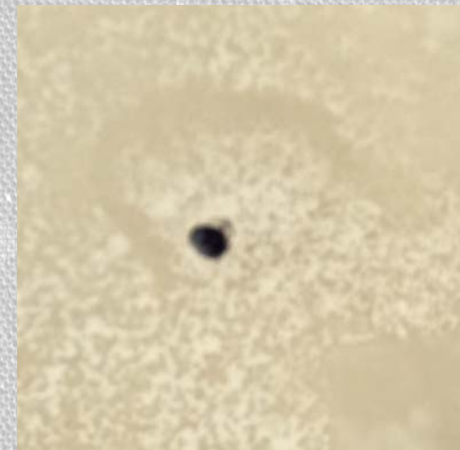
Green Tea



Alfalfa



Control



Echinacea

Results

- Overall, our studies revealed varying degrees of inhibition
- Concerns
 - Other microbes
 - Altering human normal flora
 - Prolonged/unregulated use
- Furthering research