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## INTRODUCTION

- *Campylobacter* and *Listeria Spp.* are prevalent pathogens in Pakistan.
- Most strains are resistant and cause severe gastric diseases.
- *Moringa oleifera* has been reported to show significant antimicrobial activity.

## OBJECTIVE

- To check the effective concentrations of antibiotics and *Moringa oleifera* against food pathogens.
- To compare the susceptibility of synthetic and natural antimicrobials against the food pathogens.

## RESULTS

STRAIN	ANTIBIOTICS	100µg/ml	125µg/ml	150µg/ml	175µg/ml	200µg/ml	225µg/ml	SD
<i>Campylobacter</i>	Amoxicillin	19mm	19mm	19mm	20mm	20mm	22mm	±3.15
	Nalidixic Acid	12mm	15mm	17mm	20mm	21mm	22mm	±3.20
	Ciprofloxacin	12mm	17mm	20mm	28mm	34mm	37mm	±9.91
	Azithromycin	15mm	19mm	20mm	21mm	23mm	27mm	±3.85

ZOI (mm)- RESISTANT-0 till 10 mm. INTERMEDIATE ZONES- 10 till 16 mm. SENSITIVE ZONES- 17+ mm

STRAIN	ANTIBIOTICS	100µg/ml	125µg/ml	150µg/ml	175µg/ml	200µg/ml	225µg/ml	SD
<i>Listeria</i>	Amoxicillin	0	0	0	19mm	19mm	21mm	±9.01
	Nalidixic Acid	21mm	26mm	33mm	37mm	45mm	48mm	±6.02
	Ciprofloxacin	27mm	32mm	33mm	33mm	35mm	40mm	±7.26
	Azithromycin	25mm	25mm	27mm	30mm	31mm	33mm	±2.94

550 µg/ml



Antimicrobial Activity of *M. oleifera* against *Listeria*

## MATERIALS

### Supplements

- 2.5ml *Campylobacter* Preston
- 2.5ml *Campylobacter* Growth Supplements
  - 5% Horse Blood
  - 2.5ml *Listeria* Oxford
- 2.5ml *Listeria* Growth Supplements

### Antibiotics and Medicinal Plants

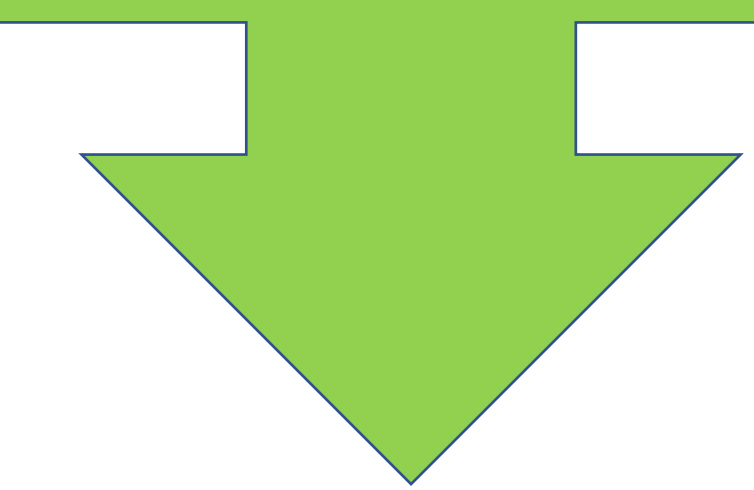
- Amoxicillin
- Nalidixic Acid
- Ciprofloxacin
- Erythromycin
- Azithromycin
- Amphotericin
- *Moringa oleifera*

## METHODOLOGY

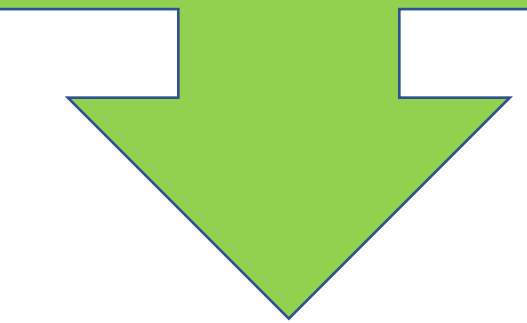
### Isolation

- From Various Food Sources
- Culturing on Selective Media

### Gram Staining



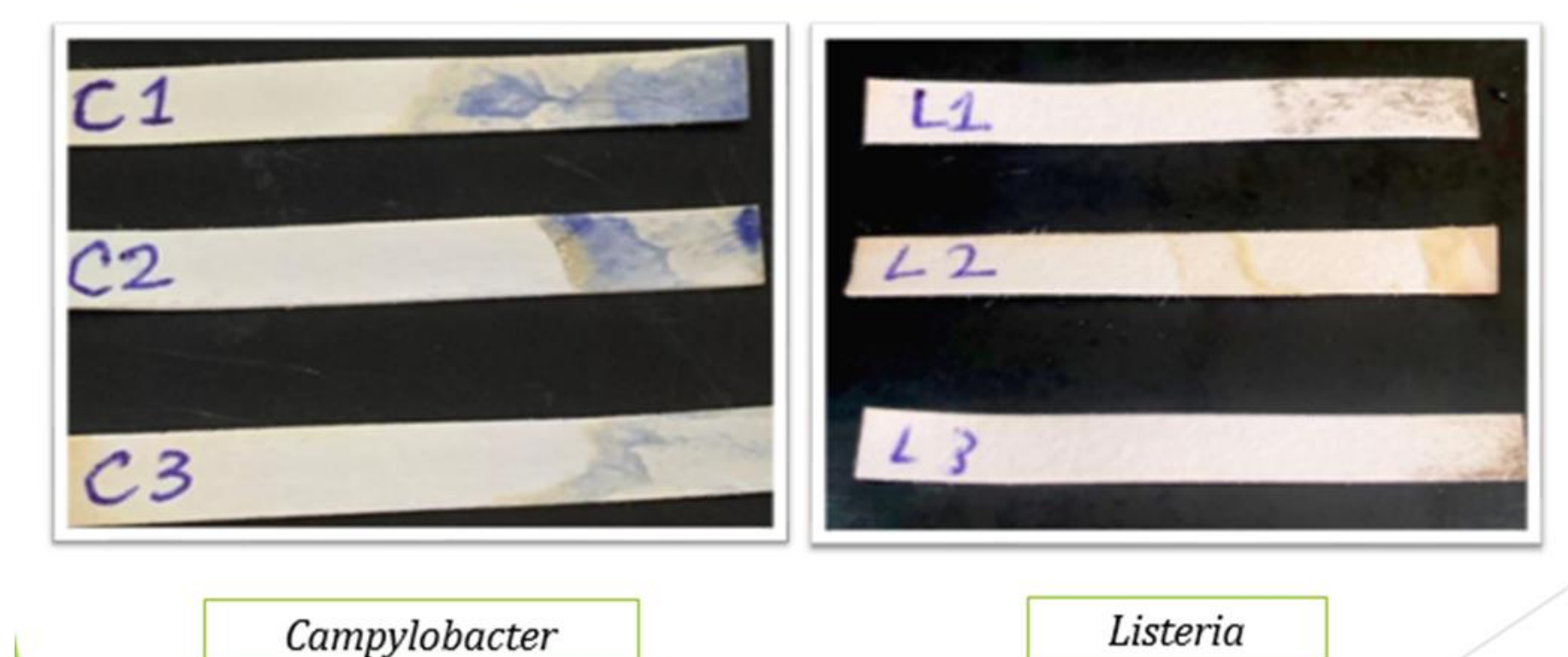
### Biochemical Tests



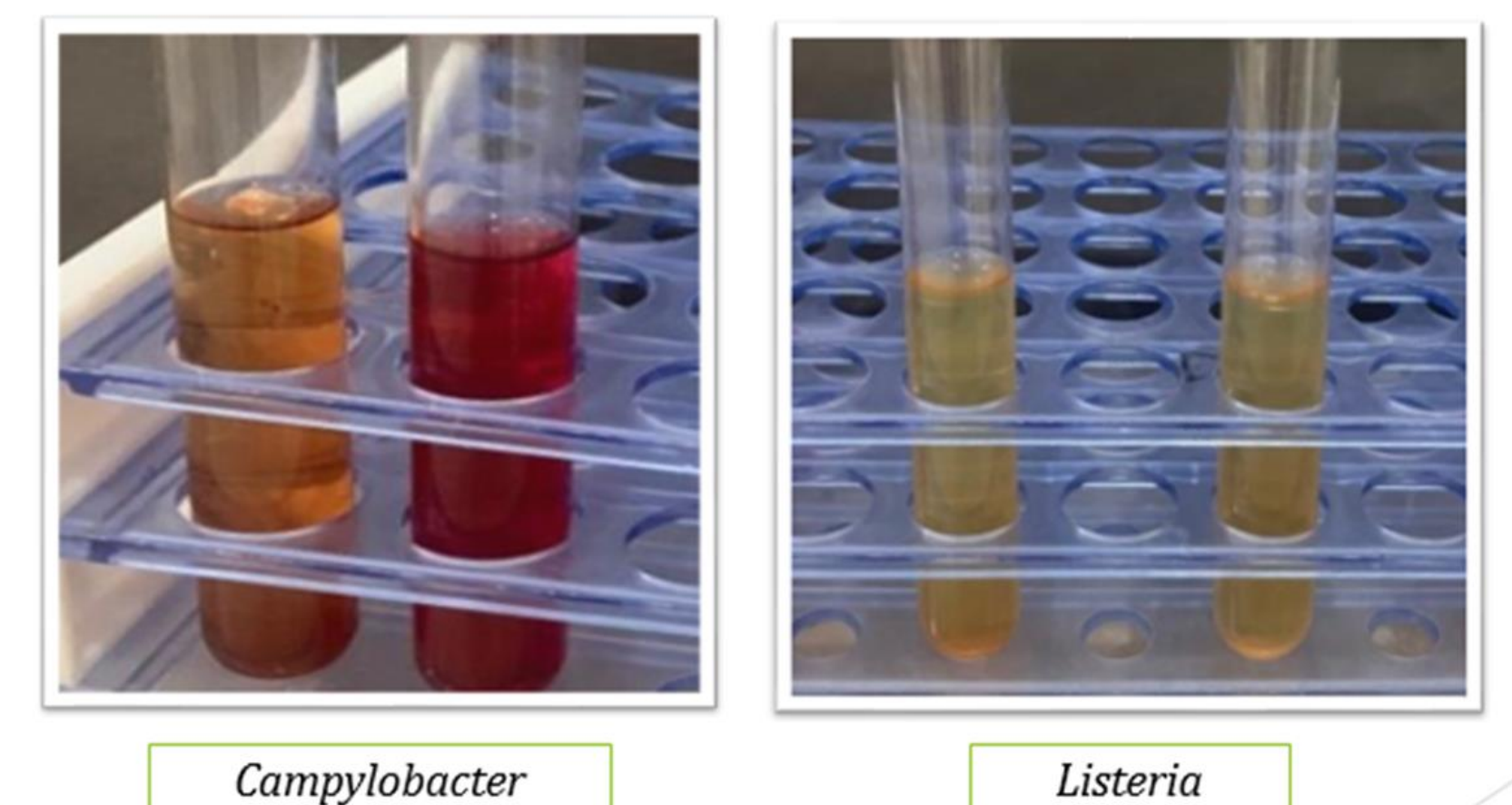
### CATALASE TEST



### OXIDASE TEST



### NITRATE REDUCTASE TEST



## DISCUSSION

- Four Antibiotics have shown significant effect.
- All strains were found to be resistant to Erythromycin and Amphotericin B.
- Nalidixic Acid and Amoxicillin were found to be effective towards *Campylobacter* at all concentrations tested.
- Nalidixic Acid and Amoxicillin were found to be effective towards *Listeria* only at high concentrations at 175µg/ml onwards.
- *M. oleifera* Methanol extract showed antimicrobial activity among all the other extracts.
- *M. oleifera* Methanol extract of 20g, 30g, and 45g showed ZOI of 11mm, 11mm, and 13mm respectively.

## CONCLUSION

- Commonly used antibiotic such as erythromycin has showed to be ineffective against the stains of *Campylobacter jejuni* and *Listeria monocytogenes*.
- Ciprofloxacin and Azithromycin have been found to be effective against both pathogens.
- High concentrations of M.O leaf extract is needed to be effective against the resistant food pathogens.