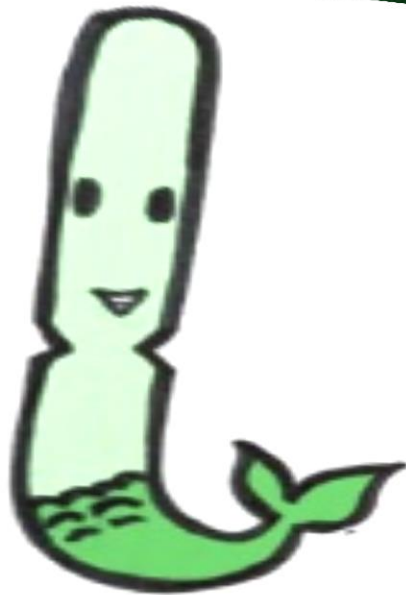


DEPARTMENT OF VETERINARY
PUBLIC HEALTH AND
EPIDEMIOLOGY

VIBRIO PARAHAEMOLYTICUS



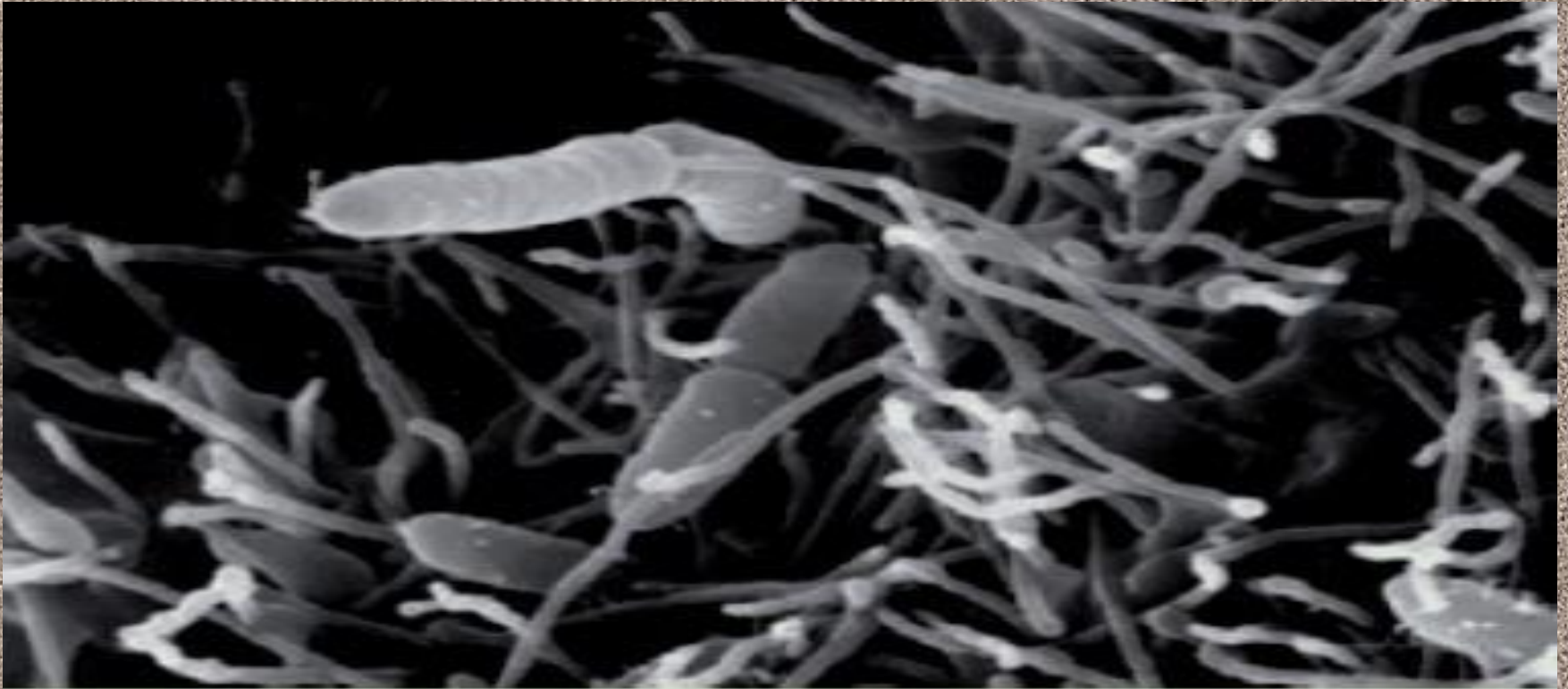
VIBRIO
PARAHAEMOLYTICUS

SYSTEMATICS

- **Scientific classification**
- **Introduction and structure of bacteria**
- **Epidemiology**
- **Pathogenicity**
- **Mode of transmission**
- **Reservoir and host**
- **Drug resistance**
- **Clinical signs**
- **Diagnosis**
- **Prevention and control**



SCIENTIFIC CLASSIFICATION



Kingdom: Bacteria
Phylum: Proteobacteria
Class: Gamma Proteobacteria

Order: Vibrionales
Family: Vibrionaceae
Genus: *Vibrio*

INTRODUCTION

- Curved
- Rod shaped
- Gram negative
- Oxidase positive
- Facultative aerobic
- Non spore forming
- Hollophillic
- Ferment glucose without gas production
- Polar flagellum which enable its high motility in liquid media
- Found in blackish saltwater which when ingested cause gastro intestinal illness in humans



WHAT IS *Vibrio parahaemolyticus* ?

- It is a bacterium in the same family as those that cause cholera and *vibrio vulnificus*
- It lives in brackish saltwater and cause gastrointestinal illness in humans
- *V.parahaemolyticus* naturally inhabits coastal waters in the US and Canada and is present in higher concentration during summer
- It is Halophilic or salt requiring organism

EPIDEMIOLOGY

- 4500 cases of *V.parahaemolyticus* infection occur each year in the United State
- *V.parahaemolyticus* and other vibrio species became nationally notifiable in 2007
- An average of 215 culture confirmed cases, 30 hospitalization, 1-2 deaths are reported each year, how ever it is estimated that there are truly as may as 45 case as most not cultured confirmed
- Persons with medical conditions like alcoholism and liver disease are at increased risk of infection are serious complications



HOST RANGE

- Humans
- Finfish
- Seafood such as cold fish
- Sardines
- Mackerel
- Flounder
- Octopus
- Shrimp
- Crab



INFECTIOUS DOSE

- Ingestion of 10^7 - 10^8 organism

RESERVOIR AND DRUG RESISTANCE

RESERVOIR –

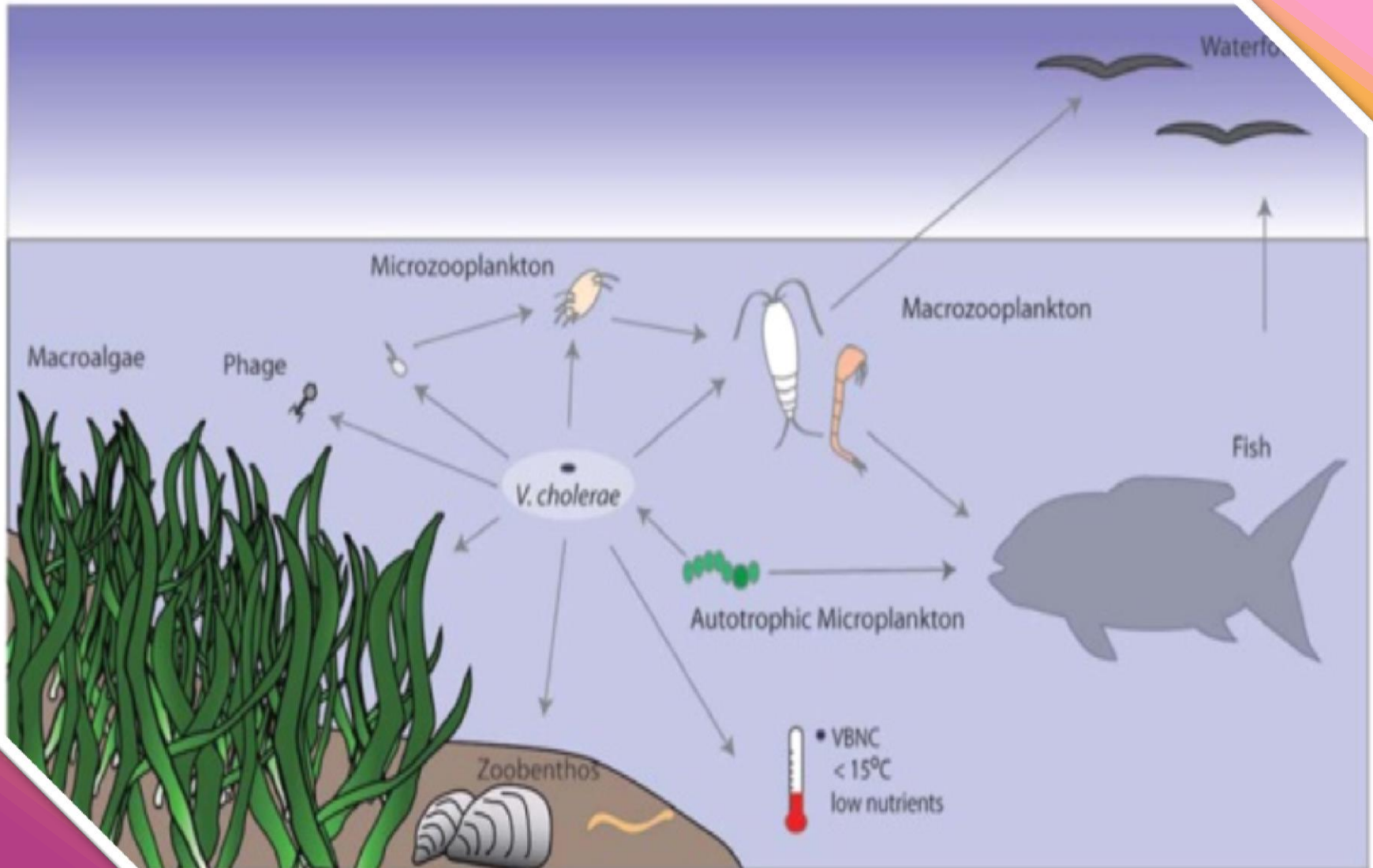
- *Vibrio parahaemolyticus* can survive in shellfish during warm season
- Naturally part of the flora of bivalve shellfish



RESISTANCE –

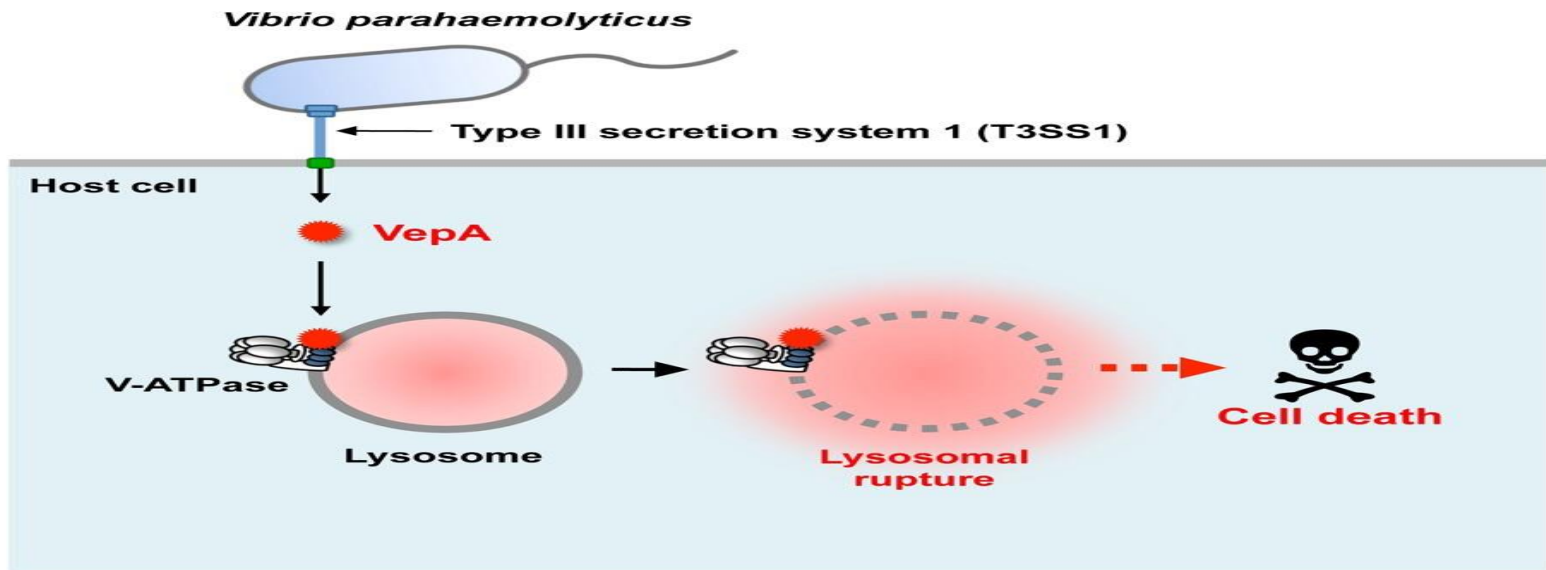
- Resistance has been confirmed Penicillin, Ampicillin, Apramycin, Gentamycin, Streptomycin
- Extremely sensitive to heat as cells are no longer detectable at 48-50 °C after 5 minutes

MODE OF TRANSMISSION



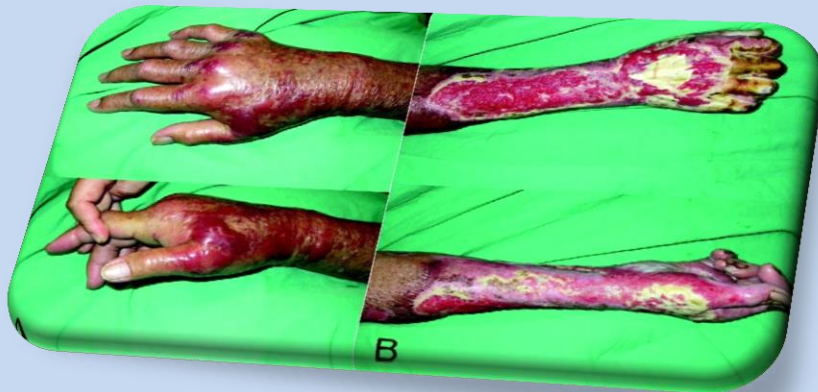
PATHOGENICITY

- Infection can occur by faecal oral route.
- 60-80 % by ingestion of bacteria in raw or undercooked seafood usually Oysters
- 34 % enters through wound infection cause Gastro-enteritis
- 5 % septicaemia with symptoms including diarrhea (bloody or watery)



SYMPTOMS

- I.P. – 15 hours after infection
- Diarrhea with abdominal cramping (bloody or watery)
- Nausea
- Fever
- Chills
- Soft tissue infection
- Wound infection

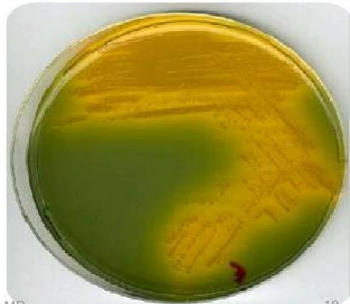


DIAGNOSIS

- Isolated from culture of stool, wound, blood
- In case of stool isolation selection medium thio-sulphate-citrate-bile salts and sucrose can be used (TCBS agar)

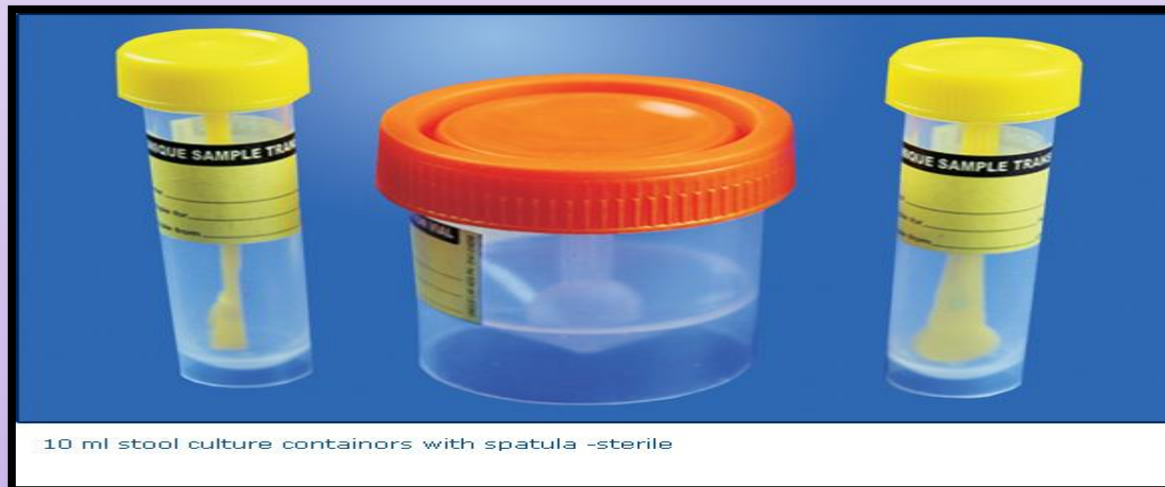
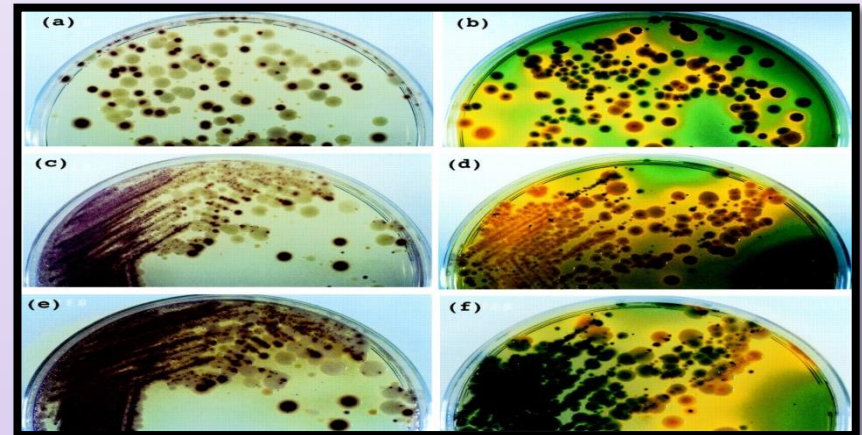
Selective Medium - TCBS

- *V.cholrae* grows well on Thiosulphate citrate bile sucrose (TCBS) agar, on which it produces yellow colonies that are readily visible against the dark green background of the agar.



Dr.T.V.Rao MD

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10 ml stool culture containers with spatula -sterile

PREVENTION AND CONTROL

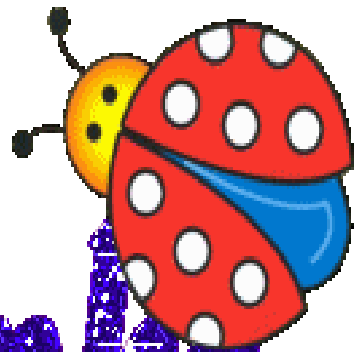
- No vaccines are currently available
- Avoid infection by keeping raw shellfish for consumption
- Consumption of raw shellfish should be at cool temperature as soon as possible after harvest
- By thoroughly cooking seafood especially oysters
- Exposure of wound should be avoided to warm water
- In outbreak conditions oyster bed should be closed
- Timely and voluntary reporting of infection to State Health Department, Regional offices and other associated department

Harvest management tools to control *Vibrio parahaemolyticus* in oysters and other bivalve shellfish



FOOD POISONING





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