Genus: Pseudomonas

Prepared by

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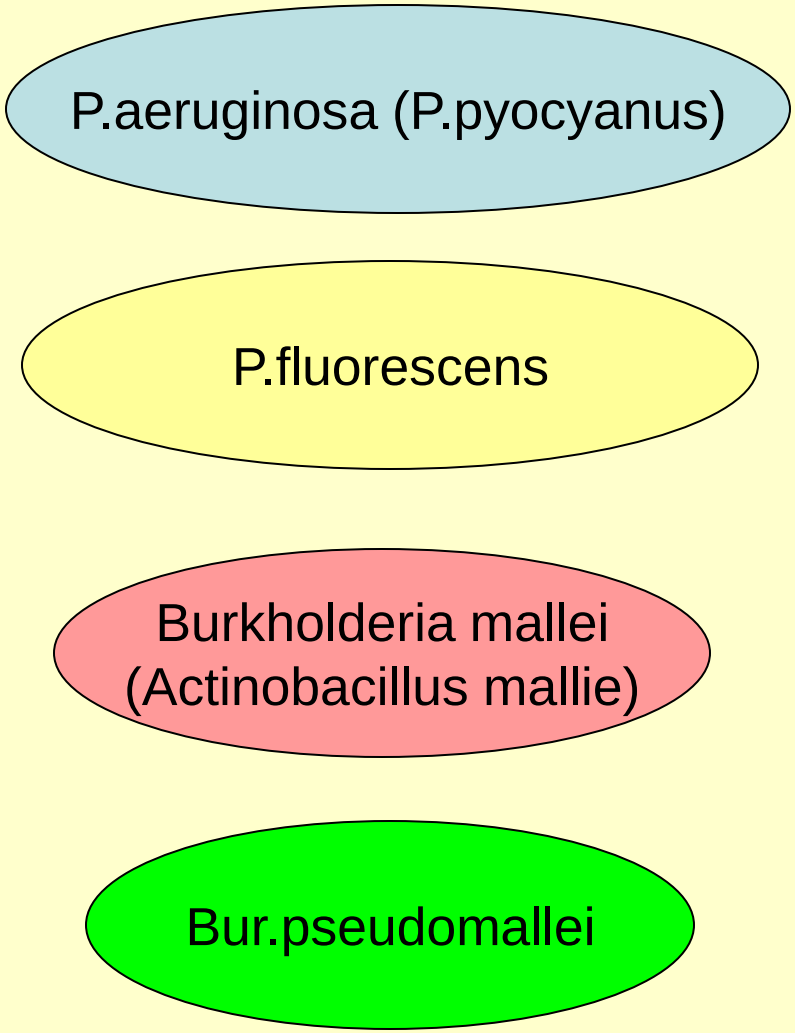


P.aeruginosa

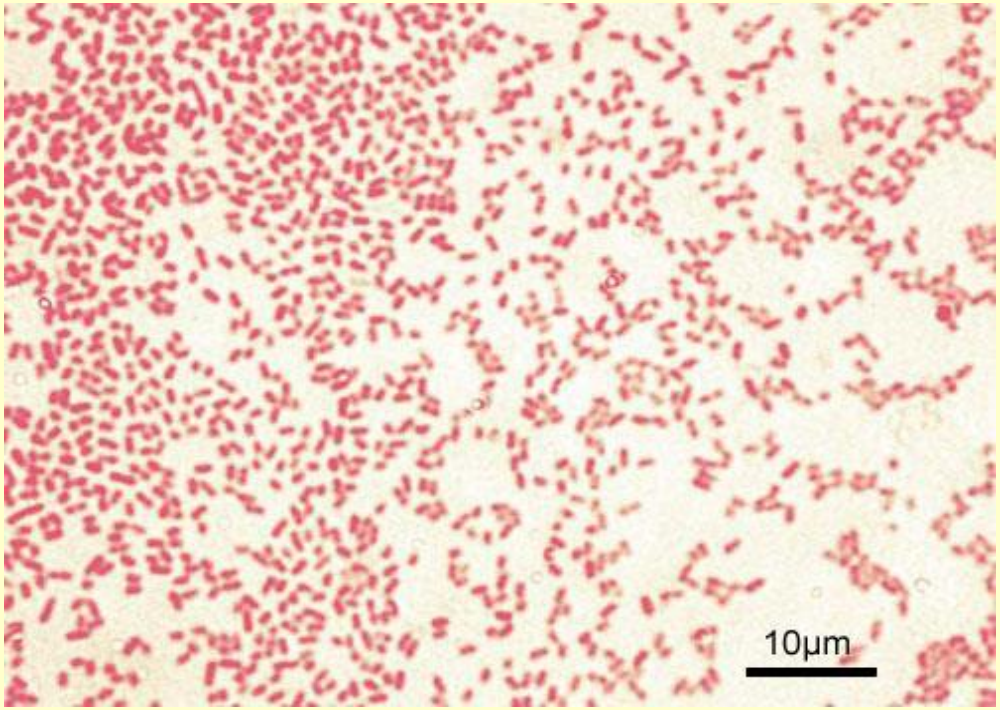
- G-ve straight rods, 0.5-0.6 x 1.5µ
- Arranged singly, in pairs or short chains
- Motile
- Colonies are large and spreading and produce upto four types of pigments:

pyocyanin (bluish-green), fluorescein or pyoverdine (yellowish-

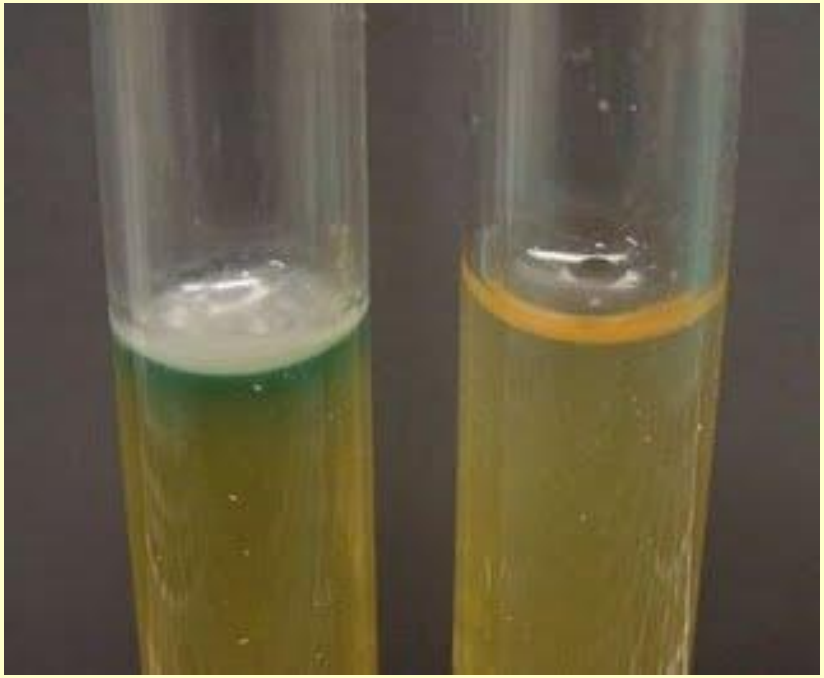
green), pyorubin (red) and pyomelanin (brown).

- Actively proteolytic to gelatin, litmus milk +ve but not active in fermenting sugars except glucose
- Pyocyanin and alpha-oxyphenazine are antibiotics that supress the growth of other species in mixed cultures but they are toxic therapeutically.
- It resist the therapeutic levels of most antibiotics except polymyxin B and neomycin
- In worm wet weather, P.aeruginosa may grow in the fleece of sheep producing a multi-discolouration (red, yellow, green)

G-ve bacilli



Polar flagellae



P.aeruginosa pyocyanin pigment

Pathogenicity

Pneumonia, enteritis, otitis media

Abortion, mastitis, pus (bluish green)

Abscess in internal organs

Metritis in mares

Enteritis in swine and dogs

Septicemia in chickens

P.fluorescens

It is an organism that found in aquatic enviroment that cause Pseudomonas disease in fish characterized by septicemia, ulceration, ascitis with liver and kidney lesions (the same disease is caused by Aeromonas hydrophilia)

It produce yellow fluorescent pigment (fluorescin) on bacto-pseudomonas F-agar

Gelatin test +ve

A fish showing ascitis

A fish showing ulceration

P.mallei

Burkholderia mallei

Actinobacillus mallei

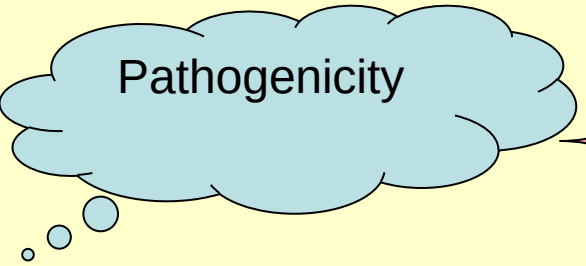
G-ve bacilli, 0.5-1 x 0.5 in size, non motile

Grow on ordinary media improved by glycerol and slight acidic pH

Colonies are moist, grey, translucent turned to yellowish brown

Broth: turbid, ropy sediment and may be pellicle

Potato glycerin media: yellow → orange → brown after 48 hours



Pulmonary form (Nodules embeded in lung tissue)

Nasal form **(Nodules in mucous membrane of nasal cavity)**

Skin or farcy form (farcy buds or glanders) (nodules along the lymph vessels between the affected lymph nodes

Glanders

Chronic form

Acute form

Nodules in septum nosi of horse

Nodules along the course of lymphatic vessels

Mallein test

Ophthalmic mallein test

I/D palpebral test

Application of the test

A horse showing +ve mallein test

Burkholderia pseudmallei

- ✓G-ve bacilli, arranged singly or short chain and motile charact. by bipolarity.
- ✓Grows on ordinary media producing circular and opaque creamy coloured colonies while on broth turbidity with pellicle
- ✓Gelatin liquifaction +ve sugar fermentation +ve and litmus milk acid and clot
- ✓Cause meliodosis or glander like disease in rodents that similar to glanders with lesions in lung and viscera; and septicemia
- ✓Diagnosed by meliodine test

Differential characteristics of Pseudomonas species

Criteria	Ps.aeruginosa	Ps.fluorescence	Ps.mallei	Ps.pseudomallei
Oxidase	+	+	+	+
Motility	+	+	-	+
Growth at 4°C	-	+	-	-
Growth at 41°C	+	-	+	+
Pyocyanine	+	-	-	-
Fluorescein	+	+	-	-
Gel. liquefaction	+	+	-	+
Mallein test	-	-	+	-
Meliodin test	-	-	-	+
Strauss reaction	-	-	+	-