

Section 1 - Infectious Agent

Agent Name: *Kocuria rhizophila*

Agent Type: Bacteria

Taxonomy:

Family: Micrococcaceae

Genus: *Kocuria*

Species: *K. rhizophila*

Subspecies/Strain/Clonal Isolate:

Synonym/Cross Reference

Micrococcus luteus

Characteristics

Brief Description: *K. rhizophila* are grampositive, oxidasepositive, and strictly aerobic cocci belonging to the family Micrococcaceae. They usually occur in irregular clusters, tetrads, and pairs, where individual cells are about 1 to 1.8 µm in diameter and are usually nonmotile and non-spore forming.

Properties: Catalase-positive and coagulase-negative.

Section 2 - Hazard Identification

Pathogenicity/Toxicity

Length of the illness/disease associated with the infectious agent in humans and animals (focusing primarily on animals of economic importance). List of the symptoms of the disease, including severity and prevalence. Mortality rate of the disease. Variations of the disease and clinical presentations. Other ailments associated with the disease. Potential acute and chronic effects should be discussed if this information is available.

Predisposing Factors: Immunocompromised with serious underlying disease.

Communicability

Not known to be transmitted directly from person to person. Transmission usually occurs through contaminated surfaces and/or objects.

Epidemiology

Micrococcus spp. and closely related genera, occur worldwide and are ubiquitous. They are found on the skin of humans and other animals and in soil, marine and fresh water, plants, fomites, dust, and air. In humans, they are most frequently found on the exposed skin of face, arms, hands, and legs. *M. luteus* is most common and is found in nature and in clinical specimens. One study (of 115 people) reports that up to 96% of people living in 18 states of USA carried micrococci, with the majority being *K. rhizophilus* (*M. leuteus*). The carriage rates were highest on the skin of the head, legs, and arms compared to those for nares and axillae.

Host Range

Natural Host(s): Humans, mammals, and some marine animals (including some fish, sharks, crustacean shellfish, shrimps, and prawns).

Other Host(s): Not applicable.

Infectious Dose

Unknown.

Incubation Period

Unknown.

Section 3 - Dissemination

Reservoir

Humans and animals (ubiquitous in the environment).

Vectors

None.

Zoonosis / Reverse Zoonosis

None.

Section 4 - Dissemination

Drug Susceptibility

Most *Kocuria* isolates were reported to be susceptible to many of the first- and second-line drugs, with the exception of ampicillin and norfloxacin.

Drug Resistance

Ampicillin and norfloxacin.

Susceptibility to Disinfectants

Grampositive

bacteria are generally susceptible to a number of disinfectants, including phenolic compounds, hypochlorites (1% sodium hypochlorite), alcohols (70% ethanol), formaldehyde (18.5 g/L; 5% formalin in water), glutaraldehyde, iodines (0.075 g/L).

Physical Inactivation

Bacteria are generally sensitive to moist heat and dry heat(8) . Growth of micrococci may be significantly reduced at temperatures >45 °C, pH <6, and in high salt concentrations (>15%).

Survival Outside Host

Micrococci are relatively resistant to drying and to moderate temperature changes. They have been shown to persist on human skin for extended periods of time ranging from few months to at least one year (up to two and a half years for several strains of *K. rhizophila* (aka *M. luteus*). They do not survive well and die quickly in natural soil.

Section 5 - First Aid and Medical

Surveillance

Monitor for symptoms. *Micrococcus* spp. can be isolated from biological samples (taken from skin) using culture techniques (on agar media). No immunological or biochemical detection techniques are currently available.

Note: All diagnostic methods are not necessarily available in all countries.

First Aid / Treatment

Appropriate antibiotic therapy should be administered as required, treatment should be supportive.

Immunization

None.

Prophylaxis

None.

Section 6 - Laboratory Hazards

Laboratory Acquired Infections

None reported

Sources / Specimens

Skin (particularly in exposed regions of the body) of humans and animals, dairy products, and various environmental sources, including soil, marine and fresh water, plants, fomites, dust, and air.

Primary Hazards

Likelihood of infection is low; however, avoid accidental parenteral inoculation, ingestion, and inhalation of infectious droplets.

Special Hazards

None.

Section 7 - Exposure Controls and Personal Protection**Risk Group Classification**

What is the Risk Group classification in humans and animals for the pathogen?

Human Risk Group Classification RG1

Animal Risk Group Classification RG1

Containment Requirements

Containment Level: CL1

Containment Zone Requirements:

Containment Level 1 facilities, equipment, and operational practices for work involving infectious or potentially infectious materials, animals, or cultures.

Protective Clothing

Lab coat. Gloves when direct skin contact with infected materials or animals is unavoidable. Eye protection must be used where there is a known or potential risk of exposure to splashes.

If there are no special hazards for this agent enter "none".

Other Precautions

All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC). The use of needles, syringes, and other sharp objects should be strictly limited. Additional precautions should be considered with work involving animals or large scale activities.

Section 8 - Handling and Storage**Spills**

Allow aerosols to settle. Wearing protective clothing, gently cover the spill with absorbent paper towel and apply suitable disinfectant, starting at the perimeter and working towards the centre. Allow sufficient contact time before clean up.

Disposal

Decontaminate all wastes that contain or have come in contact with the infectious organism by autoclave, chemical disinfection, gamma irradiation, or incineration before disposing.

Storage

The infectious agent should be stored in appropriately labelled leak-proof containers in a locked area. Containers of infectious material or toxins stored outside the containment zone must be labelled, leakproof, impact resistant, and kept either in locked storage equipment or within an area with limited access.

Section 9 - Regulatory Information

The import, transport, and use of pathogens in Canada is regulated under many regulatory bodies, including the Public Health Agency of Canada, Health Canada, Canadian Food Inspection Agency, Environment Canada, and Transport Canada. Users are responsible for ensuring they are compliant with all relevant acts, regulations, guidelines, and standards.

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References

Risk Group determination from "PHAC Biological Agent Search".

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