

Section 1 - Infectious Agent

Agent Name: Lactobacillus plantarum

Agent Type: Bacteria

Taxonomy:

Family: Lactobacillaceae

Genus: Lactobacillus

Species: *L. plantarum*

Subspecies/Strain/Clonal Isolate: N/A

Synonym/Cross Reference

None.

Characteristics

Brief Description: Lactobacillus plantarum is a rod-shaped, gram-positive lactic acid bacterium.

Properties: It can grow at temperatures between 15-45°C and at pH levels as low as 3.2. *L. plantarum* is a facultative heterofermentative that ferments sugars to produce lactic acid, ethanol or acetic acid, and carbon dioxide under certain conditions and selective substrates. Depending on the carbon source, these bacteria can switch from using heterofermentative and homofermentative ways of metabolism. This bacterium is acid and bile salt tolerant, which allows it to survive the passage through the gastrointestinal tract of humans.

Section 2 - Hazard Identification

Pathogenicity/Toxicity

Not generally considered pathogenic, *L. plantarum* has been implicated in bacteremia and endocarditis in association with probiotic therapy.

Predisposing Factors: Compromised immune system, premature infants.

Communicability

Common gut and mucosal organism. Often used as an additive in human and animal diets.

Epidemiology

Worldwide distribution. It is commonly found in the human and other mammalian gastrointestinal tracts, saliva, and various fermented anaerobic food products.

Host Range

Natural Host(s): Humans and animals

Other Host(s): Not applicable.

Infectious Dose

Unknown.

Incubation Period

Unknown.

Section 3 - Dissemination

Reservoir

Human and other mammalian gastrointestinal tracts, saliva, and various fermented anaerobic food products.

Vectors None.
Zoonosis / Reverse Zoonosis None.
Section 4 - Dissemination
Drug Susceptibility Penicillin G, amoxicillin, cefoxitin, chloramphenicol, erythromycin, clindamycin,
Drug Resistance Vancomycin, tetracycline, metronidazole.
Susceptibility to Disinfectants Gram positive 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. Growth may be significantly reduced at temperatures >45 °C, pH <6, and in high salt concentrations (>15%).
Survival Outside Host Unknown
Section 5 - First Aid and Medical
Surveillance Rarely associated with infectious disease.
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 Not applicable
Primary Hazards None.
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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