Bacillus cereus

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The Organism: Bacillus cereus is a facultative anaerobic spore forming bacteria. It is widespread in nature and in foods, especially in the spore state.

Sources of the organism:
- Soil
- Unpasteurized milk
- Cereals and starch
- Herbs and spices

Associated foods:
- Meat pies
- Cooked rice and fried rice
- Starchy foods (potato, pasta)
- Food mixtures (soups, casseroles, sauces)
- Puddings

Microorganism Characteristics: Gram positive facultative anaerobic spore forming rod.

Growth conditions:
- Temperature range: 10-49°C (50-91°F)
- Optimum Temperature: 30°C (86°F)
- pH range: 4.9-9.3
- Lowest reported Aw for growth: 0.93

The Disease: Bacillus cereus can cause two distinct types of illnesses: 1) a diarrheal illness with an incubation time of approximately 10 to 16 hours, and 2) an emetic (vomiting) illness with an incubation time of one to six hours.

Symptoms include:
- Abdominal cramps
- Watery diarrhea
- Nausea
- Vomiting

Onset time:
- Type 1: 10-16 hours
- Type 2: 1-6 hours

Infective Dose:
- Large numbers (more than 10⁵ CFU/gm) of viable Bacillus cereus cells need to be consumed for symptoms of the illness to develop.

Duration of symptoms:
- Usually 1 day

Control:
- Thoroughly cook ground meat products.
- Cool cooked products to 41°F within 4 hours.
- Hold hot foods at or above 140°F.