



## PATULIN

**Patulin**—The molds responsible for patulin production common inhabitants of our environment. Patulin is a mycotoxin included in a group of compounds commonly known as toxic lactones. Patulin is a cyclic compound that is not fluorescent.

**Producing organisms**—Patulin is produced by several fungi, most of which belong to the genera *Aspergillus* and *Penicillium*. Patulin actually gets its name from the mold *Penicillium patulinum*. Since 1986, additional genera have been added to the potential list of patulin producers.

**Conditions favoring disease and toxin formation in the field**—Patulin contamination is primarily associated with damaged and rotting fruits and fruit juices made from poor quality fruits. Patulin producing molds are found on such fruits as peaches, pears, grapes and especially apples. Recent reports indicate that patulin can be found in some vegetables. By far the most common site of occurrence of patulin is in apples.

**Visible presence of the fungus**—Patulin is particularly associated with apples exhibiting “brown rot” or other rotting characteristics. Any fruit with visible signs of rotting, decay or mold growth can be suspect and containing patulin.

**Storage occurrence of patulin**—Fruits stored under conditions that promote bruising and rotting increase the probability of patulin formation. Patulin is very stable in apple juice and grape juice. In many foodstuffs, sucrose actually protects patulin from degradation during heat treatment.

**Toxicity impact**—Initial studies of patulin indicated that it had antibiotic properties against particular bacteria. Further studies indicated, however, that the patulin was too toxic for use in humans. Patulin is currently considered a suspect carcinogen by IRAC. Symptoms of patulin include hemorrhaging in the digestive tract in cattle.

**FDA Action Levels**—Currently there are no FDA action levels for patulin. Products for human consumption should be scrutinized very carefully prior to implementing any internal control values. European tolerances are much lower with limits of 50 ppb in foods such as baby food and fruit juices.