

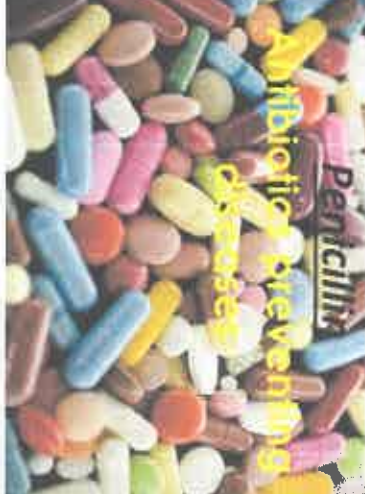

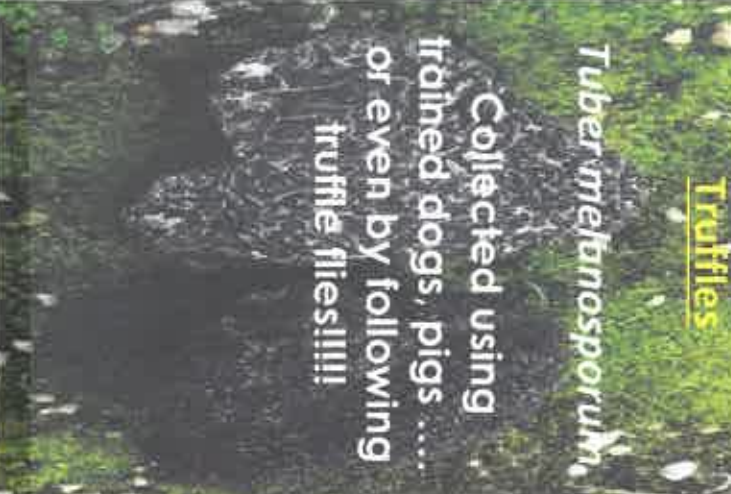

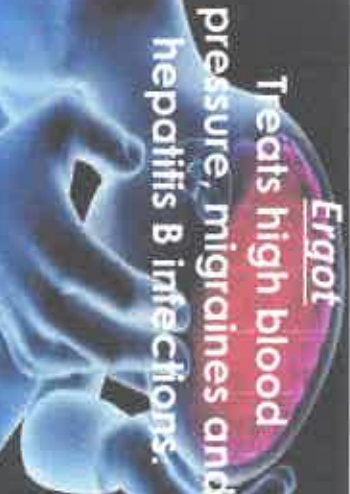








FABULOUS FUNGI!



Helping The World Around Us - Naturally!

AS FOOD	IN FOOD & DRINK	IN MEDICINE	IN INDUSTRY
 <p>Mushrooms <i>Agaricus brunneus</i> Grown commercially on sterilized straw</p>	 <p>Aspergillus Used for bread making and clarifying fruit juice.</p>	 <p>Antibiotic Prevention Diseases <i>Penicillin</i></p>	 <p>Ethanol <i>Saccharomyces cerevisiae</i> Producing beverages and biofuels.</p>
 <p>Truffles <i>Tuber melanosporum</i> Collected using trained dogs, pigs ... or even by following truffle flies!!!!</p>	 <p>Penicillium Helping mature Roquefort, brie, Camembert and other cheeses.</p>	 <p>Ergot Treats high blood pressure, migraines and hepatitis B infections.</p>	 <p>Amylase <i>Aspergillus oryzae</i> Toothpaste</p>
 <p>Saccaromyces Fermentation and distillation of beer, wine, vodka, whiskey, rum and coffee!!!!</p>	 <p>Statins Lower cholesterol by reducing the production of bad LDL cholesterol in the liver</p>	 <p>Fertilizer <i>Penicillium bilagi</i> Helps crops absorb phosphates more easily.</p>	

FUNGI AND FIZZY DRINKS!

The citric acid in fizzy drinks is often made today by fermenting molasses or other sugar substrate with the fungus *Aspergillus niger*. However, the exact strains of the fungus used in the commercial processes are a carefully kept secret!

WHAT DO THEY DO?

Manufacturers can create a large amount of citric acid by controlling conditions, such as sugar type and concentration, pH, levels aeration, phosphate concentration and the amount of ammonium salts. Up to 90% of glucose can be converted to citric acid in the process.

HOW DO THEY DO IT?

The process: Citric acid can be made by two different fermentation processes:

- **the surface process** – this takes between one and two weeks. Fungal spores are spread on the surface of shallow aluminium trays filled with nutrient medium. Fermentation is complete when a mat of mycelium forms.
- **the submerged process** – this takes a week or 10 days. Stainless steel tanks or tower fermenters help the creation of fungal mycelium pellets.

These mycelium mats or pellets are washed to remove trapped citric acid. Citric acid is removed from the culture broth and crystallised and ready for use in fizzy drinks!

By Brody Evans 5/2011

