

## Abstract

Antioxidant species in diet occur in prevention of hearth diseases and cancer, in limiting blood pressure and reducing the course of ageing. They are species able to set many cellular key process, as cellular growth and apoptosis, and to oppose, at different level, free radicals (ROS, *Reactive Oxygen Species*) induced damages. Coenzyme Q (ubiquinone-10) is a chemical able to inactivate ROS directly and , in the last decade, is considered also able to give beneficial properties to the human body.

At present time, Coenzyme Q industrial production occurs by chemical synthesis or by direct extraction from yeast.

In this thesis bacteria strains of *Rhizobiacea*, *Agrobacterium*, *Rhizobium* and *Mesorhizobium* are studied. The ability of these microorganisms to produce ubiquinone-10 is studied as a function of growth conditions. Intracellular ubiquinones were extracted and analysed by HPLC. Higher temperatures increase the specific Q-10 production (referred to dry cells) in most of the considered strains. Moreover the use of complex media of different composition can both increase or reduce this values depending on the strains. An increase of coltures aeration further improves the Q-10 production in all *Agrobacterium*

strains and in *R. galegae* HAMBI-540, *M. ciceri* HAMBI-1750 and *M. plurifarium* HAMBI-208.