

FOTI MARIO CONCETTO born in Mascali (CT) on 08/12/1961 in service at the Institute of Biomolecular Chemistry (CNR) Catania Section, Via P. Gaifami 18, 95126 Catania; Level II - Senior Researcher profile

Qualifications:

PhD in Chemical Sciences (7th cycle) achieved on 16/10/1995 by submitting a final dissertation entitled "Antioxidant activity of secondary metabolites" at the Federico II University of Naples.

Degree in Pure Chemistry obtained on 16/07/1988 with final grade of 110/110 and honors; issued by the University of Catania.

Research projects

(only the most important are indicated):

Head of unit in "Development of new antioxidant drugs" (12 months; € 150,000.00);

Head of units in the project "Effect of supplements containing or not antioxidants on oxidative stress in athletes" (24 months; € 80,000.00).

Responsible of the bilateral project 2003 - 2005 Italy - India (scientific cooperation between CNR and CSIR (India)) n.8.

Partecipation in the project "Products based on citrus juices with particular reference to pigmented orange juice. Stabilization of oxidative processes through natural systems "; and the attached training project: "Training program aimed at the enhancement of typical products with quality requirements" (MIUR Project n. 12709) year 2002, duration 24 months, funding respectively of € 2,799,579.60 and € 339,269, 83.

Patents:

Process for the synthesis of ethylene-bis (*p*-methylenquinones) and corresponding butadiene phenols;

Authors: Mario Foti and Carmelo Daquino;

patent registration date in Italy: October 26, 2004;

Patent No: MI2004A002041;

extension abroad on 21 October 2005 as PCT with no. PCT / EP2005 / 011321;

Research Activities Abroad:

Research activity as PhD student in Chemical Sciences VII cycle (University of Catania) at the "Steacie Institute for Molecular Sciences" of the National Research Council of Canada (Ottawa) under the direction of Dr. Keith U. Ingold, October 1992 - October 1994. Visiting Worker's Agreement July 11, 2001 to August 31, 2001; project, Novel antioxidants of possible therapeutic value (Head: Dr. Keith U. Ingold) of 10/07/2001. Research Associate at the Mount Allison University - New Brunswick (Canada) May 2001 - October 2001 "under the direction of Prof. Ross Barclay of the Dept. of Chemistry Mount Allison University, Sackville NB;

Other Titles:

1. Adjunct Professor aa. 2010-2012 at the Department of Pharmacy of the University of Catania;
2. Tutor of the final PhD thesis (XXII cycle of the Research Doctorate in Chemical Sciences of the University of Catania) of Dr. Carmelo Daquino. CNR tutor of various three-year and master's degree theses.
3. Member of the examining commission for a public competition
4. Didactic activity (free of charge) from 14 to 18 June 2004 with lectures on "Analytical Chemistry and Spectroscopic Techniques" for students of the International PhD in Pharmaceutical Sciences under the Agreement referred to in point 7.
5. Contact person and responsible for the CNR - ICB in the framework of the Convention for scientific collaboration and support activities for the development of PhD courses between the CNR - ICB Catania and the International PhD in Pharmaceutical Sciences belonging to the Dept. of Pharmaceutical Sciences of the University of Catania.

Invitations to Seminars held at Universities or Research Institutions:

Dr. Foti has been invited to hold eight seminars in Italian and international institutions and universities.

Scientific publications:

The author has 43 publications in high Impact Factor journals, about 4000 citations (Google Scholar) to date, and H-index of 23 and i-10 index of 32.

Research Activity

Dr. Foti deals with free radical chemistry ($R\bullet$, $RO\bullet$, $ROO\bullet$, $dp\text{ph}\bullet$) in solution. In this context, he studies in particular the antioxidant properties of phenols since these properties have a significant biological importance. The peroxy radicals degrade the organic matter exposed to the air. It is therefore essential to block these radicals by providing them with an atom of H released by the phenols. In fact, phenols have a relatively low O-H bond enthalpy (77 - 87 kcal / mol) and therefore are excellent donors of H. The reaction mechanisms are greatly influenced by the polarity of the reaction medium. Polar solvents reduce the antioxidant activity because they block the O-H of phenol with an H bond. The antioxidant activity decreases in proportion to the strength of the H bond formed by the phenols with the solvent. The consequences of these experimental observations in the biochemical field are quite important because they suggest that phenols may be excellent antioxidants of cell membranes. In polar / ionizing environments (eg, cytoplasm) other mechanisms (electron transfer) must be involved in the antioxidant activity. Dr. Foti (independently from Dr. Keith U. Ingold and Prof. Gregory Litwinienko) found that in ionizing solvents (alcohols, water and water / methanol mix) the main mechanism can be represented with an electron-transfer from phenol anions towards oxidizing radicals. The mechanism is now known in the scientific literature under the name of "Sequential Proton Loss Electron Transfer", acronym SPLET.