

AMALFITANO CARMINE CURRICULUM VITAE

1998-99: assignment for the Environmental Agricultural Chemistry course (modules Pollution control in the agroforestry system of 50 hours, and Agricultural Ecotoxicology of 50 hours) at the Faculty of Agriculture of the Federico II University of Naples;

1999-03: assignment for the course of Biochemistry of Agricultural and Forestry Plants (modules Agricultural Biochemistry I of 50 hours and Agricultural Biochemistry II of 50 hours) of the Biotechnology degree course, Plant Agriculture specialization, of the Faculty of Agriculture of the University of Naples Federico II and subsequently transferred to the Faculty of Biotechnological Sciences of the same University with headquarters also in the aforementioned Faculty of Agriculture;

1999-03: assignment for the 50-hour course on Pollution Control in the agroforestry system of the School of Specialization in Enhancement and Conservation of Agricultural and Forestry Environments;

2003-07: assignment for the Agricultural Chemistry module (4 credits, 32 hours) of the Agricultural Biology course of the degree course in Biotechnology of Agricultural and Food Production of the Faculty of Biotechnological Sciences of the University of Naples Federico II;

2004-05: assignment for the course Mechanisms of chemical response of plants to environmental stresses (4 credits, 40 hours) for the PhD school in Enhancement and management of agroforestry resources activated at the Faculty of Agriculture of the Federico II University of Naples II;

2004-05: assignment for the 50-hour agricultural chemical analysis course, as part of the training course for the "figure of industrial researcher in the management of agro-industry processes for the valorisation and environmentally friendly disposal of crop waste and transformation cycles food, course managed by the University of Naples Federico II within the National Operational Program "Scientific Research, Technological Development, Higher Education" 2000-2006 -Measure III.1 "Improvement of Human Resources in the Research and Development Sector Technological".

Tutor for PhD at the Department of Agricultural Science, 'Università degli Studi di Napoli Federico II, as follow:

2000-2003 Agricultural Chemistry (Chimica Agraria)

2004-2007 Enhancement and management of agroforestry resources, also a member of the teaching staff (Valorizzazione e gestione delle risorse agroforestali)

2011-2014 Agrochemistry and Agrobiology (Agrochimica e Agrobiologia)

2018-2021 Food Science

In 1990 Dr. Carmine Amalfitano graduated in Chemistry (110/110) at the University of Naples Federico II, where for a short successive period dedicated to researches on carbon residues produced by internal combustion engines at the Department of Chemistry, and after he started researches in Agricultural Chemistry, before under research contract and as PhD, after, from 1994, as researcher until now (AGR 13), at the Department Agricultural Sciences of the same University. There, from the beginning of his carrier he performed studies, also abroad at the CSIRO in Sydney, on the structure of natural complex molecules (humic acids, lignins, tannins etc.), and on mainly humification processes with particular regard to agricultural interest and natural environments. These studies permitted to extend his knowledge to agricultural and natural soil general properties and relatives environmental and agricultural problematics, these last specially about nutrition and plant uptake. His studies on biomass recycling, humic acids and formation of Fe oxyhydroxides, heavy metal availability and mobility, as well as on mineralogy, also fall within this context. Such kind of researches still continues to be of his interest and engage him in research also currently in progress such as those on buffalo waste recycling plant inserted in circular economy and on soil decontamination by heavy metals and hydrocarbons. Along this career he increased attention on plants with studies on phytopathogenic microorganism and mycotoxins, plant's defense mechanisms and phytoalexins, on environmentally friendly protection of agricultural production. This last was also addressed to the study of defense capacities of plants, as vine, in relation to mineral nutrition. Such studies permitted him to begin insights into the assimilation of nutrients by the plant in relation to its development and to the various main plant organs not only aiming to increase production but also on the production of defense metabolites and health benefits. This kind of studies subsequently focused on horticultural plants of great economic and environmental interest. Most of his studies have been conducted from observations in the open field or in open greenhouses which allowed him to develop awareness of the influence of the unpredictable seasonal variability of growth environments and, at the same time, to relate their effects on plant nutrition and development. In the last years he started to study the traceability of agricultural products under the invite of high experienced scientists in the field. In these studies, both with geochemical traceability methods, such as multielement or isotope analysis, and with spectroscopic methods, such as NIR spectroscopy, his contribution was, thanks to his training, to 'also pay attention to the interpretations of the analytical profiles that discriminate plant products in terms of environmental causes that determine their characteristics and therefore their validity over time. This point of view has been poorly investigated by the scientific community, for which he believes that basic studies of this kind can support a more correct and profitable use of traceability methods, in particular of plant products. These traceability studies allowed him to deepen the chemometric treatment of the data which was prompted to seek initial answers on the aspects of stability and reliability of the models resulting from the territorial traceability with an original manipulation of statistic methods which combined data from the two compartments involved , soil and plant. These capabilities have been added to those already consolidated such as the use and interpretation of data deriving from instruments among which the main ones are NMR, FT-IR MIR and NIR, GC, HPLC with any type of detector, ICP-MS and ICP -OES. As far as the latter is concerned, he is one of the two managers of a specialized laboratory in multielement analysis on any matrix, for which he has recently designed the Lab

creation and installation of the ICP instruments at the Department of Agriculture of the Univ. of Naples Federico II.

He is currently "principal investigator" of the PRIN research (2022 PNRR call) on aspects concerning the geochemical traceability and nutrition of Sorrento PGI lemons.