
Phytiatry: Priorities and challenges □ in the Mediterranean basin and world wide at the 21st century

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This opening address is referring to the current challenges in the University studies in agriculture in general and in plant protection in particular and focuses mainly on the emerging priority of establishing a new distinct science, the science of **Phytiatry** in the Universities around the globe.

Today the sciences of Medicine in humans and Veterinary in animals cover respective health problems. Similarly, plants have analogous problems and a separate profession is desperately needed worldwide.

Indeed today there is a scientific gap in plant health sciences and this gap has several consequences. So, is Phytiatry a new professional challenge within agricultural and biological sciences? The health/disease duality has been developed alongside human history mainly as a struggle for survival, while pests and diseases of plants may not be as exciting but are extremely crucial for human activities on earth. Several current research disciplines such as Phytopathology, Entomology and Phytopharmacology, hold methodological similarities to conventional medicine, which, thus, allow for correlations among them. Obviously, plant protection and human medical science are based on common scientific principles of modern scientific thought.

Would Phytiatry be a suitable plant care science? What is the rationale?

Why Phytiatry, or Phytiatrie, Fitoiatria, Phytomedicin or Plant Medicine? It became apparent in the scientific community and in the private sector that the currently used term of 'Plant Protection' is narrow and absolute, thus unable to cover the concepts of protection, recovery and therapy in plant and pest disease management. In parallel, significant aspects, related to fundamental or applied research efforts, which contribute to better understanding plant health problems and inventing means or methods of managing them, are not just plant protection. Furthermore, the problems in studying nature, biology, ecology and securing correct identity of the causal agents, pests or plant pathogens, which create vast difficulties in the diagnosticians, must not be considered as plant protection only. The aspects of **comparative symptomatology** in plant diseases or pests leading to

the clinical or laboratory plant disease and pest diagnosis are also necessary to deal with pests and parasitic or with the vast number of non-parasitic diseases and plant stress problems. The impact of the use of agrochemicals on agro systems, on soil fauna and microflora, so crucial in world agriculture, are not just plant protection. State vigilance in avoiding dispersal of plant

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pathogens or pests around the globe, securing quality of agricultural food and feed (no chemical residues or mycotoxins) and the impact of pest management on the environment are included in the broad concept of the **new science of Phytiatry**.

Without doubt, that lack of attractiveness of our important but individual disciplines, necessitates a revolution in educating students in various plant health disciplines at an undergraduate level. Establishing **Phytiatry** as a University science will be, by far, more attractive comparing with the use of term Plant protection and will elevate the standards of involved researchers and open a broad spectrum of carriers for a **new profession of plant doctor**.

The abundance of quality agricultural products in the markets is partially based on the efforts of scientists working on basic or applied aspects of plant health worldwide. However, the practices of phytopathology, entomology nematology, acarology, herbicide science, phytopharmacology etc. separately are not enough to also be a private profession. We need a broader background and knowledge of all related disciplines to establish a powerful profession. It is evident that the vast science of agriculture desperately needs the establishment of a separate field of plant health sciences called **Phytiatry**. Currently there is an apparent lack of inspiring candidate students to study individual sciences in Phytiatry, due to the uncertainty in obtaining future jobs in limited disciplines (only research centers, few industries and university departments offer limited job opportunities). Thus, I strongly support the idea of educating scientists in the field of plant medicine since several scattered sciences dealing with plant health will come closer and create powerful and synchronous undergraduate programs for plant doctors of preferably a four- to five-year duration. This will also fill the enormous gap of missing specialists in the private sector.

I feel that the International Phytopathological Society, the American Phytopathological Society, the Mediterranean Phytopathological Union, the German Phytomedical Society along with the newly established Hellenic Society of Phytiatry have to exercise their pioneered role and go ahead with such an initiative. Although the late George Agrios, the eminent plant pathologist, writer

and university teacher, in Florida, along with Anne Vidaver in Nebraska, were the pioneers in successfully establishing the plant doctor programs at a postgraduate level in the United States it seems that the post graduate studies should come as a step of graduate studies in Phytiatry.

The time had matured to come along with **other related societies** in the United States, in Europe and around the globe to open a broad and fruitful dialogue. University people, could be the leaders in this initiative and bring together all 30–40 different scientific disciplines involved in plant medicine, as indicated by the **german Phytomedical society** below:

“Disease Monitoring, Disease Diagnosis, Cultivation Practices, Production Systems, Soil Management, Seeds and Plant Propagation, Variety Selection, Stored- Product Protection, Harvest Processing, Plant Protection Strategies, Phytopathology, Phytopharmacology, Plant Virology, Epidemiology, Nematology, Entomology, Weed Science, Horticulture, Agriculture, Forestry, Soil Science, Biometry, Vertebrates,

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Mycology, Bacteriology, Technology, Molecular Biology, Breeding, Biotechnology.” This exchange of ideas could help to formalize the new education system, offering a university degree for plant doctors, regardless of plans to work in research, administration, or in the private sector. I am entirely convinced that this initiative, will be a great departure from our current situation, open new job opportunities, and

have a great impact on the world of agriculture.

Phytiatry in relevant international scientific societies

Regardless of the existence of hundreds of **international scientific societies** devoted to the plant health sciences, recently new societies use the term Phytiatry or Plant Medicine such as in Germany and Switzerland.

The Swiss Society for Phytiatry: <http://www.sg-phytomed.ch/english/index.html>. The web page of the German Phytomedical Society (DPG): <http://dpg.phytomedizin.org/>

the german Phytomedical society (dPg) is the largest scientific association in plant production in Germany. The Society is membership-based, and its members are professionals within the entire field of phytomedicine.

Here, it is interesting to see how DPG defines Phytomedicine as the science of plant disorders (whether biotic or abiotic), their diagnosis, management and control. Phytomedicine deals with all infectious agents that attack plants, and also covers damage caused to crops by pests, diseases and weeds. Under our definition, we additionally include abiotic disorders such as drought, frost, flooding, poor drainage, nutrient deficiency, salt deposition and other soluble mineral excesses or wind, which may occur naturally or may be man made. Other examples of man-made 'problems' include soil compaction, pollution of air and soil, salt applications on roads in urban areas, overuse of pesticides, as well as poor education and poor training of people working with plants. The special fields of interest (competences) of the 1,200 individual DPG members clearly reflect the broad scientific range of disciplines and topics encompassed by phytomedicine. In essence, the activities of DPG members are centred on some 20 or so basic disciplines (e.g. Plant disease, Mycology, Plant Virology, Plant Bacteriology, Nematology and Agricultural Entomology). In a multidisciplinary sense, 10 core disciplines emerge, covering important areas such as disease monitoring, diagnosis, plant protection strategies and soil management. The extent of expertise within the DPG membership varies from discipline to discipline, but all areas of phytomedicine are covered. Within the membership, there is a balance between system-oriented, applied approaches to phytomedicine and basic research, which may or may not have direct or indirect application. The former constitute mainly members from applied research and advisory institutions or organisations, who seek to provide or support solutions to plant protection problems, ideally in direct collaboration with advisors (practitioners), growers and agricultural companies. The latter include academic scientists in federal or university research

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institutes, whose links to DPG depend largely on their individual interests in plant protection issues. Thus, DPG comprises a community of experts professionally committed to the achievement and preservation of both the healthy plant' and 'healthy plant production'.

Recently **the hellenic society of Phytiatry** was established in Greece with the following web page: <http://fytiatriki.gr>

As President of the Hellenic Society of Phytiatry, I sent a letter to the Editor of Phytopathology News published by APS, with over 5000 members. The letter appears in the web page of the Hellenic Society of Phytiatry <http://fytiatriki.gr> □ **Phytiatry in usa and elsewhere**

USA scientists in Florida and Nebraska established **Phytiatry or Plant medicine** at a Post graduate level. Indeed Phytiatry or Plant medicine is a growing field that started in the University of Florida and has expanded domestically in Nebraska and internationally to Japan, South Korea, Thailand and Egypt. The main purpose was to meet the critical needs of the food industry, plant doctors serve as trained consultants to agricultural firms, liaisons between researchers and producers and educators to the general public.

Information on post graduate programs on Plant Medicine is provided in the following web pages of Florida: **<http://dpm.ifas.ufl.edu/>** and Nebraska: **<http://dph.unl.edu/>** □ **Phytiatry in europe**

The Agricultural University of Athens in collaboration with the University of Bari, Italy and Plodvil University of Bulgaria have created a TEMPUS INTERNATIONAL JOINT MASTER DEGREE IN PLANT MEDICINE in cooperation with the Universities of Tirana and Korce Albania, Novisad and Belgrade in Serbia, Zagreb in Kroatia, Tetovo and Scopia in FyROM and Pristina in Kosovo.

This is a master degree project started in January 2001. Preliminary information is provided at the web page: **<http://serlab.di.uniba.it/tempus/>**