

Permanent Committee: **Breeding and Cultivation of Medicinal Plants**

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Cannabis sativa – Breeding, Cultivation and its medicinal and nutritional use

From Cannabis to the endocannabinoid system, a molecular journey through time

Prof. Dr. Jürg Gertsch



JÜRIG GERTSCH, born 1972, studied cultural anthropology at the Universidad Central de Venezuela (UCV) and Neurosciences and Biochemistry at Sussex University and the Biozentrum Basel. He received his M.Sc. in Biochemistry from Sussex University (1997) and his Dr.sc. nat. in pharmacognosy, ethnobotany and natural product chemistry from the Swiss Federal Institute of Technology (ETH) in 2002. He has taught pharmaceutical biology and ethnopharmacology at ETH and the University of Zurich and is a present full professor of Biochemistry and Molecular Medicine at the University of Bern. Dr. Gertsch has done fieldwork among the Yanomami in Venezuela and carried out expeditions in Mexico and Sarawak. He was a visiting professor at the University of Cagliari and has lectured at the University of Guadalajara in Mexico. Dr. Gertsch's research focuses on molecular pharmacology of the endocannabinoid system and drug discovery. His research group in Bern works on projects related to immunopharmacology and biochemical pharmacology of lipids. He is a PI of the NCCR TransCure and the EU FP7 program MedPlants. Dr. Gertsch is author of more than 80 scholarly articles in renowned international journals and gives lectures on molecular aspects of psychoactive drugs.

Abstract

Cannabis sativa has a millennial history both as medicinal and recreational plant. Since the discovery of its major psychoactive constituent delta-9-THC in the 1960s a whole new fascinating area of research started and led to the elucidation of the endogenous cannabinoid system, the so-called endocannabinoid system. This system plays a major role in neurotransmission, inflammation and lipid metabolism. In this talk I will present major concepts and frontiers in the research on cannabinoids and the endocannabinoid system. Based on selected examples, it will be shown how natural product research is providing new insights in physiology and medicine and how nature inspires drug discovery.

From Cannabis to the endocannabinoid system, a molecular journey through time

Dr. Arno Hazekamp



Dr. Arno Hazekamp (1976) studied at Leiden University, the Netherlands, where he obtained his Bachelor's degree in the field of molecular biology. He continued his studies at the same university, School of Pharmaceutical Sciences, where he worked for several years in the Department of Pharmacognosy (medicinal plant research), under prof. Rob Verpoorte. From 2001 - 2005, Arno performed his PhD research focused on the medicinal properties of the cannabis plant, and on the practical obstacles that stand between this plant and its development into a modern medicine. Because the cultivation and supply to patients of cannabis in the Netherlands is fully legal, Arno was able to work closely with the official grower of medicinal cannabis in the Netherlands, Bedrocan BV, and was involved in numerous projects regarding the chemical analysis, quality control, and product development regarding medicinal cannabis. Arno was actively involved in setting up the medicinal cannabis program of the Dutch Health Ministry, and has been a strong advocate of a more science-based approach on the medicinal use of cannabis in the Netherlands and abroad.

Based on the experiences during his PhD study, in the period 2005-2010 Arno further specialized as a medical cannabis expert, working closely with government agencies, universities and pharmaceutical companies. In 2011, Arno became the Head of Research and Development (R&D) of Bedrocan BV, where he currently works on the preparation of clinical trials with medicinal cannabis.

Abstract

The medicinal use of *Cannabis* is slowly gaining a more general acceptance worldwide. Canada (since 2001) and The Netherlands (since 2003) have government-run programmes, in which quality-controlled herbal cannabis is supplied by specialized and licensed companies. In this presentation a wide review will be given of all aspects of the cannabis plant, its constituents, and their application in medicine and research. All data is based on scientific findings, with special attention for the results obtained through the Dutch medicinal cannabis program over the last years.

The presentation will cover topics such as: botanical information and varieties of cannabis; chemical composition; analytical aspects; pharmaceutical development of natural cannabinoids; clinical trials; and the legal and practical aspects of performing scientific studies. The final goal is to better understand the status quo of cannabis research, and to see the current opportunities for further studies into the medical applications of cannabis.