



UNIVERSIDADE FEDERAL DE SANTA CATARINA
CENTRO DE CIÊNCIAS AGRARIAS
PROGRAMA DE PÓS-GRADUAÇÃO EM
RECURSOS GENÉTICOS VEGETAIS
PLANO DE ENSINO



I. IDENTIFICAÇÃO DA DISCIPLINA:

CÓDIGO	NOME DA DISCIPLINA: <i>Tópicos Especiais em Recursos Genéticos Vegetais</i>	HORAS-AULA SEMANAIS		TOTAL DE HORAS-AULA SEMESTRAIS
		TEÓRICAS	PRÁTICAS	
RGV410039	Neglected and Underutilised Food Tree Species: Identification, Preservation and Promotion	2 h/a	--	15

I.1. HORÁRIO

TURMAS TEÓRICAS	TURMAS PRÁTICAS
Concentrada de segunda a sexta de manhã e de tarde: 19-23 novembro de 2018	Field Trip (to be confirmed)

II. PROFESSOR (ES) MINISTRANTE (S)

Prof. Dr. Ir. Achille Ephrem ASSOGBADJO (Faculty of Agronomic Sciences, University of Abomey-Calavi, Benin) and Prof. Dr. Ilyas SIDDIQUE (RGV/PGA)

II. PRÉ-REQUISITO (S):

CÓDIGO	NOME DA DISCIPLINA
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IV CURSO (S) PARA O QUAL(IS) A DISCIPLINA É OFERECIDA

Aberta a todos os cursos e indivíduos interessados em Ciências Ambientais, Agrárias e/ou Biológicas, assim como professores e servidores técnico-administrativos.

V. EMENTA

- Characteristics and potential contributions of the Neglected and Underutilized Species (NUS).
- Areas of intervention and new strategies to promote use of NUS.
- Stakeholder involvement.
- Criteria and methodologies for prioritised conservation and improvement.
- Challenges and Strategies in Promoting Conservation and Use.
- Research contributions.
- Value Chain Development (VCD).

VI. OBJETIVOS

Development of strategies for selecting and identifying potential neglected and underutilized food tree species on the steps that should be followed until an impact is seen.

VII. CONTEÚDO PROGRAMÁTICO

Day 1

✓ General introduction

- What are neglected and underutilized species (NUS)?
- What are the characteristics of the underutilized species available in the local context? Available skills and knowledge, domestication status, status of the species, functions of the species, adaptive value of the species; etc.
- How diverse are the NUS?
- What underutilized species can offer? Importance?
- What are the inherent strengths and weaknesses of the respective species for a particular objective? i.e What are the limitations on use of the NUS?
- What are the main opportunities for and threats to their promotion with regard to the objectives?
- What are the main intervention areas to build on the strengths and opportunities, and to overcome the weaknesses and threats?
- What are the new strategies to promote use of the NUS? (Access, conservation and improvement ; Post-harvest handling and processing; Policy and legislation; Awareness creation and lobbying; Marketing; Capacity building; Information generation and management; Inter-sectoral interventions;
- Which stakeholders/actors need to be involved in the implementation of the strategic elements?

Day 2

✓ New approaches for establishing conservation priorities for most important NUS.

- Criteria
- Methodological tools for selecting the priority species
- Case study of CWR and NTFPs in Benin

✓ Conservation of neglected and underutilized species

- How to identify the genetic variation within the species?
 - Morphological approaches
 - Molecular genetic approaches
 - Ecological approaches
 - Ethnobotanical approaches
- How to identify and select useful traits for the NUS improvement?
- How to secure the genetic resource base of neglected and underutilized species?
- Multicriteria approaches for conserving gene and species diversity *in situ* and *ex situ*
- Case study of baobab species (*Adansonia digitata* L.) in West Africa

Day 3

✓ Challenges and Strategies in Promoting Conservation and Use of Neglected and Underutilized Crop Species

- Trends In The Use Of Plant Genetic Resources
- Challenges And Opportunities
 - Development of New Markets and New Uses
 - Concern on Environmental Change and Ecosystem Stability
 - Concern Over Food Security and Nutrition
 - Strategy For The Promotion Of Neglected And Underutilized Crop Species
 - Case study of baobab and tamarind in West Africa

✓ Research approaches to enhance the contribution of neglected and underutilized species to

food security, and to incomes of the rural poor

- o Increasing the demand and use of neglected and underutilized species through development and application of appropriate processing technologies, commercialization and marketing strategies;
- o Enhancing the genetic diversity, improving the quality, and increasing the availability of germplasm of the most promising species and varieties;
- o Securing the genetic resource base and expanding the distribution of priority crops through development and application of integrated conservation strategies.

Day 4

✓ **How to Promote Value Chains of Neglected and Underutilized Species for Pro-Poor Growth and Biodiversity Conservation**

- o Underutilized species – striving for social, environmental and economic impacts (definition of value chain ; objective and impact of NUS-VCD; challenges in NUS-VCD)
- o Promoting value chains of neglected and underutilized species – drivers fostering and hampering the utilization of biodiversity
- o Basic concepts for value chain development of neglected and underutilized species (Biodiversity conservation – maintaining NUS; Pro-poor growth – combining VCD and the Sustainable Livelihood Framework; VCD – applying a holistic approach for market access; Sustainable development – building structures and developing capacities for NUS-VCD)
- o Building structures and developing capacities for NUS-VCD principles, methodologies and tools
- o Recommendations for the facilitation of NUS-VCD

✓ **Course evaluation by participants**

Day 5

✓ **Field visit on local market/farms/parklands systems/small and medium enterprise working on NUS (to be identified)**

VIII. METODOLOGIA DE ENSINO / DESENVOLVIMENTO DO PROGRAMA

Language of the course: English

Total duration: 5 days, field visit included (to be confirmed)

Methodology: Lectures; Group discussion; Student research seminars; Field Visit; Practical exercises; Interactive exchanges

IX. METODOLOGIA DE AVALIAÇÃO

Research Seminars presented by students based on reviews of the recent scientific literature

X. NOVA AVALIAÇÃO

A nota final é composta pelas três notas dos itens apresentados em IX. Metodologia de Avaliação, sem possibilidade de prova final.

XII. CRONOGRAMA PRÁTICO

Day 5	Field Trip (to be confirmed)
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XIII. BIBLIOGRAFIA BÁSICA

- Baldermanna, S., Blagojevic, L., Fredea, K., Klopsch, R., Neugart, S., Neumann, A., Ngwene, B., Norkeweita, J., Schroter, D., Schroter, A., Schweigert, J., Wiesner, M., & Schreiner, M. (2016) Are neglected plants the food for the future? *Critical Reviews in Plant Sciences* 35:106-119.
- Barbieri, R. L., Gomes, J. C. C., Alercia, A., Padulosi, S. (2014) Agricultural biodiversity in Southern Brazil: Integrating efforts for conservation and use of neglected and underutilized species. *Sustainability* 6:741-757.
- Brehm et al. (2010) New approaches for establishing conservation priorities for socio-economically important plant species. *Biodivers Conserv* 19:2715–2740
- Will, M. 2008. *Promoting Value Chains of Neglected and Underutilized Species for Pro-Poor Growth and Biodiversity Conservation. Guidelines and Good Practices*. Global Facilitation Unit for Underutilized Species, Rome, Italy.
- Mabhaudhi, T., Chimonyo, V. G. P., Chibarabada, T. P., & Modi, A. T. (2017). Developing a Roadmap for Improving Neglected and Underutilized Crops: A Case Study of South Africa. *Frontiers in Plant Science*, doi: [10.3389/fpls.2017.02143](https://doi.org/10.3389/fpls.2017.02143)
- Padulosi, S., Thompson, J., Rudebjer, P. 2013. *Fighting poverty, hunger and malnutrition with neglected and underutilized species (NUS): Needs, challenges and the way forward*. Bioversity International, Rome.

XIV. BIBLIOGRAFIA COMPLEMENTAR

- Assogbadjo A.E., Glèlè Kakaï R., Vodouhê G.F., Djagoun C.A.M.S., Codjia J.T.C. & Sinsin B. (2012). Biodiversity and Socioeconomic Factors Supporting Farmers' Choice of Wild Edible Trees in the Agroforestry Systems of Benin (West Africa). *Forest Policy and Economics* 14: 41-49. doi:10.1016/j.forpol.2011.07.013
- Bhag Mal. (1994) *Underutilized grain legumes and pseudocereals: Their potentials in Asia*. FAO Regional Office for Asia and the Pacific. Bangkok, Thailand.
- Chivenge, P., Mabhaudhi, T., Modi, A. T., & Mafongoya, P. (2015) **The Potential Role of Neglected and Underutilised Crop Species as Future Crops under Water Scarce Conditions in Sub-Saharan Africa**. International Journal of Environmental Research and Public Health, v. 12, p.5685-5711.
- Myers, N. 1983. *A wealth of wild species: Storehouse for human welfare*. Westview Press, Boulder, CO.
- Prescott–Allen R. and C. Prescott–Allen. 1990. How many plants feed the world. *Conservation Biol.* 4:365.
- Padulosi S., Eyzaguirre P. & Hodgkin T. (1999). Challenges and Strategies in Promoting Conservation and Use of Neglected and Underutilized Crop Species. Reprinted from: *Perspectives on new crops and new uses*. 1999. J. Janick (ed.), ASHS Press, Alexandria, VA.