Programa Analítico de Disciplina

BVE 619 - MORFOGÊNESE EM PLANTAS

Departamento de Biologia Vegetal - Centro de Ciências Biológicas e da Saúde	
Catálogo: 2024	
Número de créditos: 3 Carga horária semestral: 45h Carga horária semanal teórica: 3h Carga horária semanal prática: 0h	Semestres: I

Ementa
Introdução. Desenvolvimento e funcionamento dos meristemas. Expressão gênica e determinação celular. Morfogênese in vitro.

Conteúdo

Unidade	T	P	To
1. **Introdução.** 1. Aspetos gerais da organização do corpo das plantas. Bases celulares do crescimento e desenvolvimento.	6h	0h	6h
2. **Desenvolvimento e funcionamento dos meristemas.** 1. Embriogênese zigótica em plantas. Organização e funcionamento dos meristemas. Células-tronco em plantas. Morfogênese: partes vegetativas (caule, raiz e folha). Transição de fases. Diferenciação e morfogênese floral.	21h	0h	21h
3. **Expressão gênica e determinação celular.** 1. A base genético-molecular do desenvolvimento das plantas. Controle da expressão gênica. Competência, determinação e diferenciação celular. Diferenciação vascular.	12h	0h	12h
4. **Morfogênese in vitro.** 1. Fenômenos morfogênicos in vitro: bases fisiológicas e moleculares da regeneração. Embriogênese somática: aspectos estruturais, fisiológicos, bioquímicos e moleculares. Organogênese de novo: aspectos estruturais, fisiológicos, bioquímicos e moleculares.	6h	0h	6h
Total	**45h**	**0h**	**45h**

Teórica (T); Prática (P); Total (To);

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Bibliografias básicas	
Descrição	**Exemplares**
Buchanan BB, Gruissem W, Jones RL (eds.) 2015. Biochemistry & Molecular Biology of Plants, 2nd ed. Rockville, MD: American Society of Plant Pathologists, 2nd ed.	0
Crang R, Lyons-Sobaski S, Wise R (eds.) 2014. Plant Anatomy. A Concept-Based Approach to the Structure of Seed Plants. Springer International Publishing, Springer Nature Switzerland AG.	0
De Smet I (ed.) 2013. Plant Organogenesis: Methods and Protocols, In : Methods in Molecular Biology. New York, Springer, vol.959, 356 p.	0
Fosket DE (ed) 1994. Plant growth and development: a molecular approach. San Diego: Academic Press, 580p	0
Frugis G (ed.) 2020. Plant Development and Organogenesis From Basic Principles to Applied Research, MDPI, Basel, 246 p.	0
Howell SH (ed.) 1998). Molecular genetics of plant development. Cambridge: University Press, 1998. 365p.	0
Henning L, Köheler C (eds) 2010. Plant Developmental Biology. In: Methods in Molecular Biology. Vol. 655. 448 p.	0
Jones R, Ougham H, Thomas H, Waaland S (eds.) 2013. The Molecular Life of Plants.. Willey-Blackwell, American Society of Plant Biologists, Oxford, 742 p.	0
Riechmann JL, Frank Wellmer F (eds.) 2014. Flower Development: Methods and Protocols. Humana Press, 492p.	0
Roberts K (ed.) 2007. Handbook of Plant Science, vol.1, Wiley-Interscience, London, 769 p.	0
Roberts K (ed.) 2007. Handbook of Plant Science, vol.2, Wiley-Interscience, London, 1599 p.	0
Taiz L, Zeiger E, Moller IM, Murphy A (eds.) 2015. Plant Physiology and Development, 6th ed, Sinauer Associates, Sunderland.	0
Taiz L, Zeiger E (eds.). 2017. Fisiologia Vegetal. 5ª Ed. Porto Alegre: Artmed.	0

Bibliografias complementares
Não definidas

Syllabus

BVE 619 - Morphogenesis in Plants

Departamento de Biologia Vegetal - Centro de Ciências Biológicas e da Saúde	
Catalog: 2024	
Number of credits: 3 Total hours: 45h Weekly workload - Theoretical: 3h Weekly workload - Practical: 0h	Period: I

Content
Introduction. Development and functioning of meristems. Gene expression and cell determination. Morphogenesis in vitro.

Course program

Unit	T	P	To
1. **Introduction.** 1. General aspects of plant body organization. Cellular bases of growth and development.	6h	0h	6h
2. **Development and functioning of meristems.** 1. Zygotic embryogenesis in plants. Organization and functioning of meristems. Stem-cells in plants. Morphogenesis of vegetative parts (stem, root and leaf). Phase-change in plants Differentiation and floral morphogenesis	21h	0h	21h
3. **Gene expression and cell determination.** 1. The genetic-molecular basis of plant development. Gene expression regulation. Competence, determination and cellular differentiation. Vascular differentiation.	12h	0h	12h
4. **Morphogenesis in vitro.** 1. In vitro morphogenic phenomena: physiological and molecular bases of regeneration in plants. Somatic embryogenesis: structural, physiological, biochemical and molecular aspects. De novo organogenesis: structural, physiological, biochemical and molecular aspects	6h	0h	6h
Total	**45h**	**0h**	**45h**

Theoretical (T); Practical (P); Total (To);

BVE 619 - Morphogenesis in Plants

Fundamental references	
Description	**Copies**
Buchanan BB, Gruissem W, Jones RL (eds.) 2015. Biochemistry & Molecular Biology of Plants, 2nd ed. Rockville, MD: American Society of Plant Pathologists, 2nd ed.	0
Crang R, Lyons-Sobaski S, Wise R (eds.) 2014. Plant Anatomy. A Concept-Based Approach to the Structure of Seed Plants. Springer International Publishing, Springer Nature Switzerland AG.	0
De Smet I (ed.) 2013. Plant Organogenesis: Methods and Protocols, In : Methods in Molecular Biology. New York, Springer, vol.959, 356 p.	0
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Taiz L, Zeiger E (eds.). 2017. Fisiologia Vegetal. 5ª Ed. Porto Alegre: Artmed.	0

Complementary references
Not defined