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Role of Computer Technology and Artificial Intelligence in Modern Botanical Education and Plant Research

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Abstract

Botany plays a significant role in understanding plant diversity, biodiversity conservation, environmental sustainability, and ecosystem management. In the present digital era, the integration of computer technology and artificial intelligence (AI) into education has created new opportunities for improving the teaching and learning of botanical sciences. This study highlights the importance of digital tools, virtual laboratories, online botanical databases, AI-based plant identification applications, and interactive learning platforms in modern Botany education. These technologies can make complex botanical concepts such as plant anatomy, morphology, physiology, taxonomy, and ecology more accessible, interactive, and interesting for students. Furthermore, technology-based learning can promote practical knowledge, scientific curiosity, research skills, and environmental awareness among learners. The study also emphasizes the need for effective educational policies, digital infrastructure, teacher training, and equal access to technology to ensure inclusive and quality education. It is suggested that integrating computer-based learning with traditional botanical education can enhance students' academic performance and practical understanding of plant sciences. Thus, the adoption of innovative digital technologies in Botany education can contribute significantly to achieving the goals of modern education and sustainable development.

Keywords: Botany Education, Artificial Intelligence, Digital Learning, ICT, Plant Science, Educational Policy, Sustainable Development.