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Nota di contenuto	Plant based-metabolites and their uses in nanomaterials synthesis: An overview -- Flavonoids mediated nanomaterials synthesis, characterization and their applications -- Terpenoids in nanomaterials synthesis, characterization and their applications -- Lignin and their role in nanomaterials synthesis and applications -- Preparation of nanomaterials using coumarin and their various applications -- Alkaloids: a suitable precursor for nanomaterials synthesis, and their various applications -- Nanomaterials synthesis using saponins and their applications -- Synthesis, characterization and application of nanomaterials from carotenoids -- Essential oil from plant, and their role in nanomaterials synthesis, characterization and applications -- Seed-based oil in nanomaterials synthesis and their role in drug delivery and other applications -- Tree bark and their role in nanomaterials synthesis and applications -- Root-based metabolites and their role in nanomaterials synthesis and applications -- Flower-based compounds and their role in nanomaterials synthesis and applications -- Green and cost-effective nanomaterials synthesis from

aquatic plants and their applications -- Green and cost-effective nanomaterials synthesis from desert plants and their applications -- Aromatic oil from plant, and their role in nanoparticles synthesis, characterization and applications.

Sommario/riassunto

Nanotechnology is gaining importance in every field of science and technology. Green synthesis of nanomaterials involves the use of microorganisms such as bacteria, fungi, viruses; and different lower and higher plants. Green synthesis of nanomaterials from plant extracts becoming popular in comparison to synthesis using microorganisms. Plant based-nanomaterials synthesis is easy, have no need to bring back from the culture medium, and is safe. Additionally, plant-based nanomaterials are eco-friendly, in comparison to physical and chemical modes of synthesis. Several lower and higher plants are rich in terms of secondary metabolites. These metabolites have been used as medicine in crude extract form or with some other formulations. They have been also used to isolate the bioactive compounds in modern medicine as well as in herbal medicine systems. Thus, phytochemicals present in the plant and their parts play an important role in nanomaterials synthesis, mainly due to the presence of a significant number of secondary metabolites, for instance, alkaloids, flavonoids, saponins, steroids, tannins, etc. Further, essential and aromatic oils have been also explored for nanomaterials synthesis, and they are also equally useful in terms of their various biological applications. These organic ingredients come from a wide range of plant components, such as leaves, stems, roots, shoots, flowers, bark, and seeds. Globally, the presence of different plants has shown a capability to produce huge and diverse groups of secondary metabolites. The functional groups present in the plant extract acts as capping and stabilizing agent. Most of the time, pure isolated bioactive compounds are more biologically active; hence scholars are focusing their research on the synthesis of nanomaterials using some particular class of secondary metabolites. Investigations have shown that the green synthesized nanomaterials were found to be more biologically active in comparison to chemicallysynthesized nanomaterials. These nanomaterials and or nanocomposites found different applications especially in drug delivery, detection and cure of cancer cells, diagnosis of a genetic disorder, photoimaging, and angiogenesis detection. They have also shown several applications in agricultural, horticultural as well as forestry sectors. The book in hand covers a wide range of topics as mentioned above. It incorporates chapters that the authors have skilfully crafted with clarity and precision, reviewing up-to-date literature with lucid illustrations. The book would cater to the need of graduate students as a textbook and simultaneously be useful for both novices and experienced scientists and or researchers working in the discipline of nanotechnology, nanomedicine, medicinal plants, plant science, economic botany, chemistry, biotechnology, pharmacognosy, pharmaceuticals, industrial chemistry, and many other interdisciplinary subjects. It should also inspire industrialists and policy makers associated with plant-based nano products.