Document details - Combustion Process Using Plant-Based Fuels for the Synthesis of Metal- Oxide Nanostructures

ChemistrySelect

Volume 4, Issue 27, 23 July 2019, Pages 8026-8042

Combustion Process Using Plant-Based Fuels for the Synthesis of Metal- Oxide Nanostructures(Review)

Vivekanandhan, S.

Sustainable Materials and Nanotechnology Lab, Department of Physics, V.H.N.S.N. College (Autonomous), Virudhunagar, Tamilnadu 626 001, India

Abstract

Metal oxide nanostructures receive great interest due to their unique size and shape dependent physicochemical and functional properties. With the rapid growth of metal oxide nanotechnology, their chemical synthesis processes have become the most promising one due to their simplicity and versatility. Among the various available chemical processes such as sol-gel, hydrothermal, polyol and precipitation, the combustion process receives significant attention. In particular, the combustion process has been extensively explored for the synthesis of various nanostructured materials including metal oxides, which involves in the exothermic reaction upon thermal heating of precursor chemicals. Recently, the combustion process has been reinvented by using the various renewable resource-based organic fuels, which receives increasing interest among global researchers. A wide range of plant/ leaf, fruit, flower, seed, peel, latex and tuber extracts along with the plant-derived products have been explored in combustion process for the synthesis of various metal oxides. Hence, the present review is aimed to focus the recent advances in the combustion process by using renewable fuels for the synthesis of metal oxide nanostructures and also the emerging opportunities. © 2019 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Author keywords

Bio-fuel | Combustion Process | Metal Oxides | Nanoparticles | Powders

Funding details

Funding sponsor	Funding number	Acronym
	1593	
University Grants Commission		UGC

Funding text

SV acknowledges University Grants Commission (UGC) for the financial support for this research activity through the Minor Research Project (MRP/UGC-SERO- Proposal No.: 1593).

ISSN: 23656549
Source Type: Journal
Original language: English
DOI: 10.1002/slct.201900103
Document Type: Review
Publisher: Wiley-Blackwell

Vivekanandhan, S.; Sustainable Materials and Nanotechnology Lab, Department of Physics, V.H.N.S.N. College (Autonomous), Virudhunagar, Tamilnadu, India;