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Patent Search

Invention Title	A METHOD FOR SOL-GEL ASSISTED SYNTHESIS OF BISMUTH DOPED MAGNESIUM FERRITE USING WHITE RICE POWDER
Publication Number	01/2024
Publication Date	05/01/2024
Publication Type	INA
Application Number	202211031106
Application Filing Date	31/05/2022
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	MECHANICAL ENGINEERING
Classification (IPC)	B82Y0030000000, C23C0018120000, C01G0049080000, C01G0049060000, C01B0013180000

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Abstract:

ABSTRACT A METHOD FOR SOL-GEL ASSISTED SYNTHESIS OF BISMUTH DOPED MAGNESIUM FERRITE USING WHITE RICE POWDER The present invention describes a method for sol-gel assisted synthesis of bismuth doped magnesium ferrite using white rice powder as a chelating agent as a green synthesis route for the preparation of Nanoferrites. Because of its advantages, such as superior stoichiometric control and the manufacture of ultrafine particles with a narrow size distribution in a relatively short processing time lower temperatures, the sol-gel method is a viable and appealing technology for the preparation of nanosized particles. The effect of the quantity of white rice powder on the formation of pure phases and also magnetic as well as dielectric properties are proposed to be characterized.

Complete Specification

DESC:FIELD OF INVENTION:

This invention generally relates to the field a method for sol-gel assisted synthesis of bismuth doped magnesium ferrite. More particularly, the present invention relates to the method of sol-gel assisted synthesis of bismuth doped magnesium ferrite using white rice powder as a chelating agent as a green synthesis route for the preparation of Nanoferrites.

BACKGROUND OF THE INVENTION

There is unusual chemical as well as structural properties and that allows Nanomaterials to behave differently from their bulk counterparts. There is a plethora of applications because of their specific large surface area. Bismuth doped spinel ferrites have shown excellent magnetic properties specially when bismuth is doped in the lower ratios, because of its large atomic radius, it replaces iron on the tetrahedral sites and creates a distortion in the crystal and the changes are occurred in magnetic domains of the material.

White rice is a rich and natural source of starch, which is again a biodegradable polysaccharide. Earlier many studies have reported the synthesis of bismuth doped nanoferrites using several synthetic fuels/chelating agents and also with biodegradable chelates such as citrus fruits, corn starch, Urea and other agents. White Rice powder has never been explored as a chelating agent in the sol-gel process, the present invention describes a method of preparation of nanoferrites using this process. The effect of the quantity of white rice powder on the formation of pure phases and also magnetic as well as dielectric properties are characterized.

There are few references made to the present invention and solution for the aforesaid problem as given below:

In CN101734724B the patent discloses that Bismuth ferrite multiferroic nanomaterial was synthesized and the material belongs to a class of multiferroics, whereas in the

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