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(71)Name of Applicant :

1)Dr Sarika Arora

Address of Applicant :Associate Professor, Department of Chemistry, School of Sciences , IFTM University, Moradabad, 244102, India -----

2)Dr Anuj Bhatnagar

3)Dr Raj Kumar Singh

4)Dr Rajan Singh

5)Mr. Garima V. Desoria

6)Dr Richa Saxena

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)Dr Sarika Arora

Address of Applicant :Associate Professor, Department of Chemistry, School of Sciences , IFTM University, Moradabad, 244102, India -----

2)Dr Anuj Bhatnagar

Address of Applicant :General Manager – Research & Development, Synokem Pharmaceuticals Limited, Uttarakhand, Haridwar, 249403, India -----

3)Dr Raj Kumar Singh

Address of Applicant :HOD – Drug Regulatory Affairs, Venus Remedies Limited, Himachal Pradesh, Solan, Baddi, 173205, India -----

4)Dr Rajan Singh

Address of Applicant :Assistant Professor, Department of Mathematics, School of Sciences, IFTM University, Moradabad, Uttar Pradesh, 244102, India -----

5)Mr. Garima V. Desoria

Address of Applicant :Assistant Professor, Department of Mathematics(Basic Science) , Technocrats Institute Of Technology, Anand Nagar, Bhopal, Madhya Pradesh, 462021, India -----

6)Dr Richa Saxena

Address of Applicant :Assistant Professor, Department of Physics, School of Sciences , IFTM University, Moradabad, Uttar Pradesh, 244102, India -----

(57) Abstract :

ABSTRACT The electrical properties of Iron (iii) Oxide (Fe₂O₃) were investigated by impedance spectroscopy over the frequency 1 Hz to 10 MHz at room temperature. Scanning electron Microscopy (SEM) and Raman Spectroscopy has been done of Iron (iii) Oxide Nanopowder ranging 30-40 nm in diameter. The morphological analysis of Iron (iii) Oxide (Fe₂O₃) has been done by (SEM) informing the identical particles and diameters ranging 30-40 nm. Additional, the Raman shift deviation exhibit reliable peak found at ~143, 289, 498 and 629 cm⁻¹ of Iron (iii) Oxide (Fe₂O₃) Nanopowder. The electrical studies of the Iron (iii) Oxide (Fe₂O₃) Nanopowder have been inspected in order to obtain the dependency of electrical parameters (mainly dielectric permittivity, loss, conductivity, loss-tangent, impedance, and admittance) on frequency. Considerable dependency of the conductivity on frequency which is achieved owing to significant change in particle diameter. It calculated that the electrical parameters of Iron (iii) Oxide (Fe₂O₃) Nanopowder have a great dependency on the frequency.

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