

(54) Title of the invention : Value addition of caffeic acid by transformation into selenium nanoparticles of caffeic acid with pharmacologically apt physico-chemical characteristics, and therapeutic applications to combat oxidative stress thereof

(51) International classification :B82Y0030000000, A61K0009510000, A61P0035000000, H01J0037260000, H01M0004020000 (86) International Application No :NA Filing Date :NA (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA	(71)Name of Applicant : 1)Satendra Kumar Nirala Address of Applicant :Department of Rural Technology and Social Development, Guru Ghasidas University, Koni, Bilaspur, Chhattisgarh ----- -- ----- 2)Monika Bhadauria Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Monika Bhadauria Address of Applicant :Toxicology and Pharmacology Laboratory, Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur 495009 (C.G.) India Bilaspur ----- 2)Pavitra Behra Address of Applicant :Toxicology and Pharmacology Laboratory, Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur 495009 (C.G.) India Bilaspur ----- 3)Pratima Dutta Address of Applicant :Laboratory of Natural Products, Department of Rural Technology and Social Development, Guru Ghasidas Vishwavidyalaya, Bilaspur 495009 (C.G.) India Bilaspur ----- 4)Shubham Singh Address of Applicant :Toxicology and Pharmacology Laboratory, Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur 495009 (C.G.) India Bilaspur ----- 5)Satendra Kumar Nirala Address of Applicant :Laboratory of Natural Products, Department of Rural Technology and Social Development, Guru Ghasidas Vishwavidyalaya, Bilaspur 495009 (C.G.) India Bilaspur -----
---	--

(57) Abstract :

The present invention is related to the field of nanotechnology focusing on value addition of caffeic acid by transforming it into selenium nanoparticles (SeNPs) of caffeic acid with biocompatible and pharmacologically apt physico-chemical characteristics, and therapeutic applications to combat oxidative stress induced disorders. The SeNPs of caffeic acid have scavenging action against ABTS, DPPH, H₂O₂ radicals and possesses antioxidant property, which may help in developing novel strategies in medical and pharmaceutical areas. More particularly, this invention involves green synthesis and physico-chemical characterization (zeta sizer, X-ray powder diffraction, Fourier Transform Infrared spectroscopy, Transmission Electron Microscopy, selected area electron diffraction, Scanning Electron Microscopy, energy dispersive X-ray spectroscopy) of SeNPs of caffeic acid with pharmacologically compatible antioxidant potential, and in vivo no observable adverse effect level (NOAEL) up to 3.0 mg/kg dose for continuous six days through oral route in rat model confirming its safety profile.

No. of Pages : 24 No. of Claims : 8