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NATURE-FRIENDLY BIOSYNTHESIS, CHARACTERIZATION AND ANTIDERMATOPHYTIC ACTIVITY OF AgNPs FROM *CORCHORUS OLITORIUS* SEED AQUEOUS EXTRACT

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ABSTRACT: The current report reveals a novelty in extracellular ecofriendly-biosynthesised AgNPs using the seed aqueous extract of Corchorus olitorius as a reducing agent. The biosynthesised synthesised AgNPs characterised by using spectral analysis like UV-visible spectroscopy, Transmission Electron Microscopy, X-ray diffraction studies, energy dispersive X-ray. Antidermatophytic biogram of AgNPs was recorded by cup plate technique. The manifestation, dimension and contour of the silver nanoparticles were implicit by UV-visible spectroscopy, transmission electron microscopy. The X-ray diffraction reports, energy dispersive X-ray analysis indicate that particles are crystalline in nature. Fourier transform infrared spectroscopy analysis exposed that the nanoparticles are enclosed with bio-moieties on their shell. The current examination records the bio functionalized silver nanoparticles thus fashioned have shown commendable antidermatophytic consequence. The current formula implicated is eco-friendly, effortless and hence high range production of the same can be measured for using them in numerous pharmaceutical significances.

Key words: *Corchorus olitorius, natural-friendly-biosynthesis, skin diseases, silver nanoparticles, TEM, antidermatophytic activity.*

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The field of nano-technology is one of the most active research areas in modern materials science. Nanoparticles exhibit new or improved properties based on specific characteristics such as size, distribution and morphology. There have been impressive developments in the field of nanotechnology in the recent past years, with numerous methodologies developed to synthesize nanoparticles of particular shape and size depending on specific requirements. The division of nanotechnology is being concentrating on production and stabilization of various types of nanoparticles (Shivakumar Singh, Vidyasagar, 2014).

Bio-synthesized silver nanoparticles (AgNPs) have spacious assortment of applications because of their notable physical and chemical properties. In general, metal nanoparticles are synthesized and stabilized through chemical and mechanical methods [Feymen et al., 1991, Bigall et al., 2010, Balantrapu et al., 2009], electrochemical techniques [Tripathi et al., 2010] , photochemical reactions in reverse micelles (Patakfalvi et al., 2010) and now a day's via green chemistry method (Rodriguez-Sanchez et al., 2000). The use of green chemistry is an increasing interest of the synthetic procedure for nano-products, which are targeted as potential applications in the fields of catalysis in chemical reactions (Taleb et al., 1998), medicinal (Crooks et al., 2010, Bhumkar et al., 2007, Bhumkar et al., 2007), bio-labeling (Poovi et al., 2011), microelectronic [Hayat, 1989], information storage (Gittins et al., 2000]and optoelectronic devices (Dai et al., 2002). In attendance, some groups of researchers focusing on biomimetic approach such as plant seed or leaf extracts, microbes and yeast to produce the metal nanoparticles called as "green chemical or phytochemical" approach (Li et al., 2010, Savitramma et al., 2011, Ramgopal et al., 2011, Sinha et al., 2009, Shivakumar Singh, Vidyasagar, 2013).

Corchorus olitorius is well known ethno-medicinal plants of Karnataka (Kannan et al., 2011) which is a source of important phytochemicals of secondary metabolites [Ramadevi et al., 2003, Cochorus et al., 2003, Gupta et al., 2003), it is also illustrious for its flavonoids contented, besides for its antibiotic and antioxidant [Pal et al., 2006, Nakamura et al., 1998, Arunachalam et al., 2009, Tore Duvold et al., 2003] activities as well. Thus far, there have been no previous reports on the ecofriendly-biosynthesis of nanoparticles by using seed extract.