

# Chemomodulatory effect of silver embedded magnesium oxide nanoparticles of ethanolic extract of *Wrightia tinctoria* leaf in 1,2-dimethyl hydrazine induced colon carcinoma in male sprague dawley rats

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## Abstract:

This work reports the synthesis, characterization and evaluation of chemo-modulatory effect of silver embedded magnesium oxide nanoparticle of ethanolic extract of *Wrightia tinctoria* leaf in 1,2-dimethyl hydrazine induced colon carcinoma in male Sprague dawley rats. Particle size and Zeta potential study revealed the mean size of 215 nm and 0.423 mv of SEMN of ethanolic extract of *W.tinctoria* leaf, Scanning electron microscopy (SEM) and Transmission electron microscopy (TEM) and studies showed that the spherical, fibrous nature of the nanoparticle present. Energy dispersive x-ray (EDX) study indicated the existence of Ag and Mg in NP's complex. In-vivo study result shows that SEMN of ethanolic extract of *W.tinctoria* leaf shows decreased in tumor weight and tumor burden as equivalent to standard 5- FU treatment group. Aberrant crypt foci (ACF) an earlier stage is formed in the colon during 4<sup>th</sup> to 6<sup>th</sup> week from the administration of DMH. Antioxidant and lipid per oxidation study reveals that SEMN has a very good antioxidant capacity. Haematological parameter is evaluated in SEMN of ethanolic extract of *W.tinctoria* treated groups. This work concluded that the presence of flavonoids such as Kaempferol-3-O-rhamnoside, 3,5,7,4-tetrahydroxy-6- flavone, Quercetin-3-O-sophoroside, 5,7,3',4',5'-pentahydroxy flavanone in leaf of *Wrightia tinctoria* and in combination with the magnesium as a silver embedded magnesium oxide nanoparticle produces a synergistic effect on colon carcinoma cells by acting on cyclic dependent kinase (CDK's) and also inhibit C-MYC oncogene expression.

**Keywords:** Colon cancer, 1,2-dimethyl hydrazine, Ag-Mgo NP's of ethanolic extract of *W.tinctoria*, Synergistic activity.