SYNTHESIS OF NANO PARTICLES FROM PLANTS

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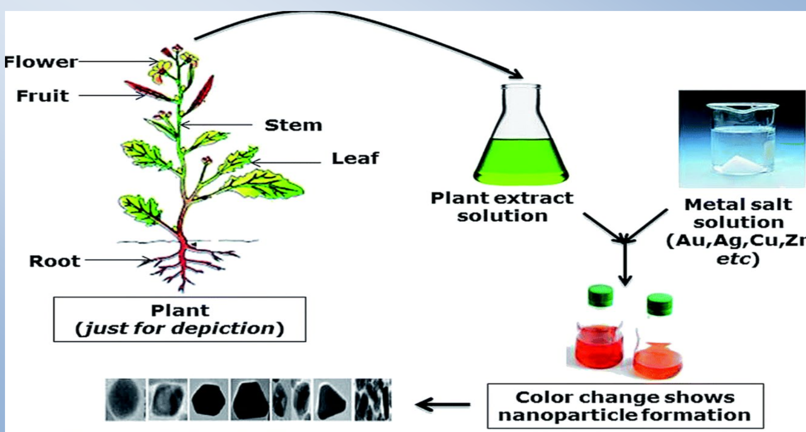
ABSTRACT: This present report states that the eco-friendly synthesis of titanium oxide nanoparticles (TiO_2 NPs) using *Cissus quadrangularis* (C. quadrangularis) plant extract .The non-toxic source mediated synthesis of metal and a metal oxide nanoparticle attains more attention due to key applicational re- sponsibilities. Further the eco-friendly synthesized TiO_2 NPs were characterized using a number of analytical techniques[1]. Then the eco-friendly synthe- sized TiO2 NPs were subjected for anti-fungal , anti-bacterial , anti-septic, quick healing of wounds and other bio medical applications[2]. The nanoparticlesare synthesized by physical, chemical and biological processes. The biological synthesis of nanoparticles involves algae, actinomycetes, bacteria, fungi and plants. The Nobel

metals like silver(Ag), gold(Au), platinum(Pt), palladium(Pd), copper(Cu), zinc(Zn), and iron(Fe) were used nano particles.

GRAPHICAL ABSTRACT :



APPLICATIONS:

TiO_2 exhibits good photo catalytic properties, hence is used in antisepticand antibacterial compositions

Degrading organic contaminants and germs.

They are used in Manufacture of printing ink, self-cleaning ceramics and glass, coating, etc.

Used in Making of cosmetic products such as sunscreen creams, whitening creams, morning and night creams, skin milks, etc.

They are used in the paper industry for improving the opacity of paper.

RESULTS: As a result we have obtained nanoparticles with use of plant powder, which yields purified form of TiO_2 nanoparticles after evaporating them through furnace. Then purified yield has to be sent for the characterization process (XRD Analysis) and the results are in the data form, the data is calculated using the software called ORIGIN.

METHADOLOGY:

STEP 1: Preparation of plant extract

STEP 2: Mixing of metallic nano particles by plant extract for bio-reduction

STEP 3: Bio-reduction of metal to metal nanoparticles by plant extract

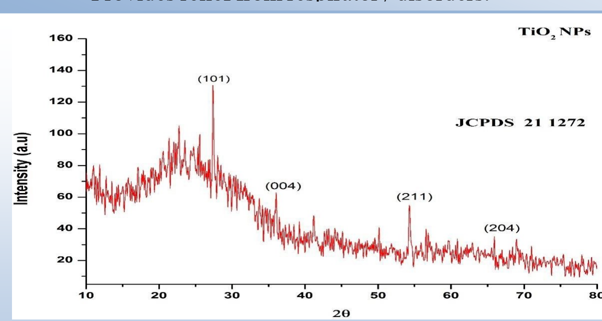
STEP 4: Formed nanoparticle analysed by UV-vis spectroscopy

STEP 5: Characterization of nano particles by SEM, TEM, XRD, and EDAX

STEP6: Biological application by bio assay

ADVANTAGES:

- Boosts immune system.
- Prevents heart disorders.
- Aids in quick healing of wounds.
- Improves bone and dental health.
- Aids in reducing risk of type: 2 diabetes.
- Provides relief from respiratory disorders.



XRD ANALYSIS

CONCLUSION: From this experiment we concluded that Cissus quadrangularis have the ability to produce nano particles using different materials (salts of metals) aswell as using solvents and the nano particles obtained through the biological process. The obtained nano particles are produced at size of 35.95 nm. This biological process is used in medical field, food technology as well as electronics. The further analysis is going on to make it's uses better in future.

FUTURE WORK: In future it should be examine with the TEM, SEM and EDAX. It gives potential to the cell membrane. This group of nanoparticles can act as binding receptors and it allows the molecule to release the drug product.

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