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Obtaining Nanoparticles By Using Silybum Marianum Seeds Excrtact

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Abstract. *Development of technologies and nanoparticle synthesis without the use of hazardous resources and do not contain minus effects on the environment depend on natural materials, especially plants are main issue. Biomolecules, presents in herbal extracts are able to be used for reducing metal ions to nanostructure particles in one green-stage synthesis process. In this work synthesized silver nanoparticles using liquid ethanol extract of Silybum marianum L.*

Keywords: Liquid extract, Silybum marianum L, dry extract, silver nanoparticle, exctraction, time, seeds

Introduction

In last century, more attention is given to nanoparticles of precious metals, which are used in the fields of medicine, pharmacy, biology, materials science, physics and chemistry**.** More and more is belong to the plant world, as the valuable and renewable sources bio reduction. The exact mechanism for the synthesis of silver nanoparticles (NHS) using the plant extracts are not yet fully understood, but the main reducing agents considered flavonoids, polyphenolic acids, alkaloids, enzymes, proteins, terpenoids, cofactors, and other biological active substances. Thus, the present study was aimed to synthesize rapidly AgNPs ethanol extract using SM seeds plants investigate biomolecules responsible for the synthesis of SNPs. We have learned that the use of PA leaf extract for green synthesis of silver nanoparticles has not previously been reported

Theophrastus and Plinius were first to report the medicinal benefits of this plant. All parts of the plant can be used, but the milk thistle seeds are considered to be the most medicinally potent for therapeutic use. The seeds and extracts of the milk thistle plant are a well-established herbal food for protecting, detoxifying and regenerating the liver, one of the most important organs of the human body. We explored the physic-chemical properties as well the amino acids content of the milk thistle partially defatted seeds, The obtained results revealed that partially defatted milk thistle seeds are a good source of protein (20.35%), lipids (11,69%), total carbohydrates (38.16%) from which crude fiber (27.24%). This by-product presents a high mineral content (mg/100g): calcium (912), magnesium (433), iron (80,5), zinc (7,38) and copper (2,69). The partially defatted milk thistle seeds protein contained markedly amounts of essential amino acids such as arginine, leucine valine and lysine [Livia Apostol.2017]. On the surface of the leaf plate green shiny flowers for red, pink or white, which are collected in a large spherical single basket. Around her flower eat thorny leaves. to make the Rose of the rose thick, covered with feathers. All blooms are same-sex, two in a tube. It blooms in July-August.

Materials and Methods

Medicinal herbs seeds of Silybum marianum L. were purchased as a finished product (FC “So’qoq gilosi”, Uzbekistan). Other material silver nitrate was used in the main laboratory. All reagents were used without further purification. In the capacity of 250 ml capacity was placed in advance prepared an elevated, filled with 100 ml of distilled water, placed on a water bath. Extraction was carried out at a temperature not exceeding 80 ^{0}C, for 60 minutes. The resulting extract was allowed to cool to room temperature and then filtered. To obtain the desired silver nanoparticles dissolved amount of white crystalline powder of silver nitrate in water to form a 0.01M solution of silver nitrate.

Table 1: Then, according to the following table, prepared by different concentration of the mixture (see Table 1). The process of obtaining nanoparticles was carried out at a temperature of 25^{0}C.

№	Designation of the extraction and its concentration in %	The amount of added liquid extract per ml	The concentration of silver nitrate solution in ml	The ratio of extract: silver nitrate	Retention time, min.
1	SM 10 % ethanol extract	1 ml	0,01M - 1 ml	1:1	100
2	SM 10 % ethanol extract	2 ml	0,01M - 1 ml	2:1	118
3	SM 10 % ethanol extract	3 ml	0,01M - 1 ml	3:1	223
4	SM 10 % ethanol extract	4 ml	0,01M - 1 ml	4:1	265
5	SM 10 % ethanol extract	5 ml	0,01M - 1 ml	5:1	385
6	A control sample was 10%	5 ml	----	----	----

As it is visible from the table, the various concentrations of 10% Silybum marianum ethanol extracts have been used for the synthesis of SNPs. Bioreduction of nanoparticles are made initially in the following way: to a different volume Silybum marianum extract was added the same amount, ie, 1 ml of 0.01 M silver nitrate solution, including 1: 1, 2: 1, 3: 1, 4: 1 and finally 5: 1 (for example, 5: 1 ratio is 10 parts of 10% Silybum marianum extract and 1 part 0 01 M solution of silver nitrate), respectively.

RESULTS: After stirring the solution retention time, to produce nanoparticles with began and reached 100 minutes to 385 minutes (without stirring). The formed nanoparticles discoloration manifested solution expressed on colloidal brown slurry. The resulting solutions were centrifuged for 5 minutes at a frequency of 4000 ppr. The precipitate was washed three times with water, then centrifuged again under the same conditions.

DISCUSSION

Detailed study SNPs biosynthesis with Silybum marianum seeds extract was carried out and is shown in this work. The aqueous solution containing silver ions was added to a plant extract, to obtain SNPs. It was observed that the color of the solution changed from light brown to dark brown, after the time specified in Table 1.

CONCLUSION: Silver nanoparticles were synthesized using a 10% ethanol extract of Silybum marianum L., which is economical and environmentally friendly process. Modern methods of analysis carried out with UV-spectroscopy and scanning electron microscopy system, microprobe confirmed the transfer of ions of silver nitrate to form silver nanoparticles. In further we plan to carry out the synthesis of nanoparticles based on other materials, as well as the method of controlling the size of nanoparticles.

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