

RESEARCH PAPER

A Green technology –Homoeopathic drug as Nanomedicine

Theja.B¹, Jenitta. E.P¹, Prajnaya Alva²,
Alva's Homoeopathic College, Moodbidri, Karnataka.
Alva's Centre for Research in Nanotechnology, Moodbidri, Karnataka.
Alva's Homoeopathic College, Moodbidri, Karnataka.

Abstract

Scientists currently debate the future implications of nanotechnology. Nanotechnology may be able to create many new materials and devices with a vast range of applications, such as in nanomedicine. The potency of a homoeopathic medicine increases with dilution followed by succussion (together termed as potentization) has thrown challenges to the scientific community at large. A recent hypothesis, advanced by us and others, is that due to the process of potentization, the size of the constituent particles decreases and eventually reaches nanodimension. Because of horsetail's diuretic activity, the patients' urine discharge increased, enabling them to flush out the kidney stones, also relieving them of the UTI symptoms. Presence of various phytochemicals such as flavonoids, alkaloids, saponins, steroids, carbohydrates and amino acids have been confirmed in the prepared extract as well as the mother tincture *Equisetum hyemale*. According to calculations using Avogadro's limit, preparations above 12C dilution should have no source material present. It is interesting to note that even though the formulations *Equisetum hyemale* 30C and 200C are considered ultra-high dilutions, they gave a positive result for many phytochemicals. Compounds like Saponin, Cardiac glyceride, Protein are present in *Equisetum hyemale* in all potencies, while other compounds like tannins and carbohydrates are present in mother tincture only. Antioxidant property also help in preventing cell damage. Trace element in mother tincture and 200C is potassium.

KEY WORDS: Nanotechnology, Succussion, *Equisetum hyemale*, Phytochemicals, Antioxidant, Mother tincture, diuretic.

I. Introduction

The potency of a homoeopathic medicine increases with dilution followed by succussion (together termed as potentization) has thrown challenges to the scientific community at large. A recent hypothesis, advanced by us and others, is that due to the process of potentization, the size of the constituent particles decreases and eventually reaches nanodimension. [3] Several phenomena become pronounced as the size of the system decreases. These include statistical mechanical effects, as well as quantum mechanical effects, for example the "quantum size effect" where the electronic properties of solids are altered with great reductions in particle size. This effect does not come into play by going from macro to micro dimensions. However,

quantum effects can become significant when the nanometer size range is reached, typically at distances of 100 nanometers or less, the so-called quantum realm [4].

The problem with urinary tract infections is that they tend to be chronic in nature. Urinary tract infection clears just in time for another infection to begin. The first infection weakens the urinary tract and makes it easier for bacteria to move in and cause the second urinary tract infection. The third makes it even easier for the fourth and so on.[2]

Equisetum hyemale as a homoeopathic medicine has a great treatment results on UTI According to a study, having horsetail tea three times a day has helped people suffering from uric acid kidney stones and urinary tract infection (UTI). Phytochemistry deals with the chemistry of plant metabolites and their derivatives. As per statistics available with the WHO, 80% of the earth's population rely on traditional medicine for their primary health-care needs and most of this therapy involves the use of plant extracts and their active components. . A large number of plants have shown potent antioxidant activities[5]. Oxidation is a chemical reaction that can produce free radicals, thereby leading to chain reactions that may damage the cells of organisms. Antioxidants such as thiols or ascorbic acid (vitamin C) terminate these chain reactions .[1] This study was to show the antioxidant property, phytochemical analysis and trace elements .

II.METHODOLOGY

2.1.1 Collection of materials :

Mother tincture, potencies 30C and 200C of *Equisetum hyemale* collected from Dr.Willmar Schwabe India pvt . Ltd . 30C potencies were made at Alva's Homoeopathic college, Mijar.

2.1.2 Preparation of potencies

10 drops of mother tincture and 90 ml of distilled water was added to phial and 10 strokes of equal strength was given , 1st potency was prepared .To another clean phial one drop from previous and 99 drops of distilled water added and 10 equal strength stroke is given , forms the 2nd potency. Continue the same step till 29th potency . From 29th potency 0.3 ml is taken and 29.7ml of dispensing alcohol is added and 10 strokes are given, forms the 30th potency.

2.2. Phytochemical analysis [Ekta kundra arora Ato _]

Equisetum hyemale MT, 30C and 200C have been used for all studies. All reagents have been prepared following standard protocols. *Equisetum hyemale* MT has been used as the positive control. a preliminary phytochemical study to determine the phytoconstituents present was undertaken for the extract prepared and

the homoeopathic formulations. The ethanol extract was considered suitable since the homoeopathic formulations are in ethanol medium.

Test for flavonoids

Alkaline reagent test

To the different sample solutions, a few drops of sodium hydroxide solution were added. Formation of intense yellow colour, which turned colourless after addition of few drops of dilute hydrochloric acid, indicated the presence of flavonoids.

Test for alkaloids

Mayer's test

One millilitre of Mayer's reagent was added to the different sample solutions. Formation of cream colour precipitate indicated the presence of alkaloids.

Mayer's test One

Test of saponin glycosides

1ml extract was treated with 1% lead acetate solution. Formation of white precipitate indicates the presence of saponins.

Test for amino acids

Ninhydrin test A solution of ninhydrin in ethanol is added to the sample solutions. Appearance of a purple colour indicated the presence of amino acids.

Test for tannins

Ferric chloride test :

Different sample solutions were treated with ferric chloride solution; appearance of blue and green colours indicated the presence of hydrolysable and condensed tannins.

Test for carbohydrate

Benedict's test

Plant extracts were treated with benedict's reagent and heated gently. Orange red precipitate indicates the presence of reducing sugar.

Plant extracts were

Test for steroids

Salkowski reaction

To the different sample solutions, chloroform was added followed by concentrated sulphuric acid along the sides of the tube. A red-brown colouration indicated the presence of steroids.

Test for cardiac glycosides

Keller-Killiani test

Glacial acetic acid (0.4 mL) and a few drops of 5% ferric chloride solution are added to the sample solutions. Concentrated sulphuric acid (0.5 mL) is added along the side of the test tube carefully. The formation of blue colour in the acetic acid layer confirmed the presence of cardiac glycosides.

Test for anthraquinone glycosides

Hydroxyanthraquinone test

To 1 mL of the samples, a few drops of 10% potassium hydroxide solution were added. The formation of a red colour confirmed the presence of anthraquinone glycosides.

Test for proteins

Biuret test

To 2 mL of the sample solutions, 5 drops of 1% copper sulphate solution are added followed by 2 mL of 10% NaOH. The contents are mixed thoroughly. Formation of a purple or violet colour confirmed the presence of proteins.

2.3 Antioxidant potential

Dissolve 25mg DPPH in 50 ml of ethanol , forms the DPPH used .Mix 2.5ml of DPPH with 2.5ml of 200C forms sample and 2.5ml DPPH with 2.5 ml of ascorbic acid (Std) .Shake and keep sample at room temp for 30min. .Measure absorbance at 520nm using mixture of 2.5ml distilled water and 2.5ml ethanol as blank.As control ascorbic acid with DPPH is used.OD is measured using colorimeter.Calculation of % inhibition

$$\% \text{ inhibition} = \frac{\text{OD of control} - \text{OD of sample}}{\text{OD of control}} \times 100$$

2.4 Trace element analysis

Flame test : The compound is placed in the flame of a gas burner, there is a characteristic color given off that is visible to the naked eye. To perform the flame .test: Use a clean wire loop made out of platinum or nickelchromium (nichrome) wire, dip the loop into the solution to be tested, and then placed into the hottest portion of a flame. The resulting color of the flame is observed and this indicate the presence of a particular ion.

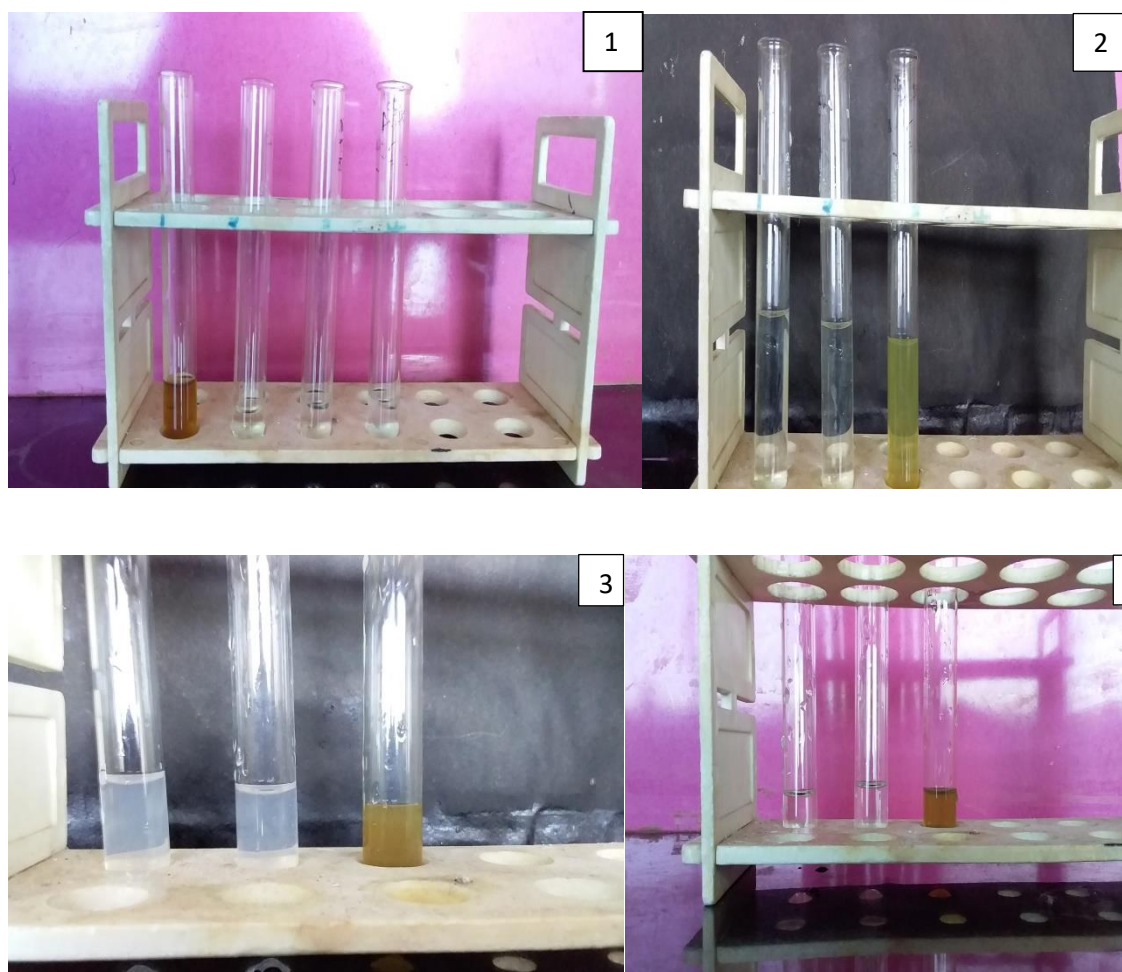
III Result

3.1 Phytochemical analysis:

Sl.no;	Phytoconstituents	30potency	200potency	Mother tincture
1.	Flavinoid	-ve	-ve	-ve
2.	Alkaloid	-ve	-ve	-ve
3.	Saponin	+ve	+ve	+ve
4.	Amino Acid	-ve	-ve	-ve

5.	Tanins	-ve	-ve	+ve
6.	Carbohydrate	-ve	-ve	+ve
7.	Steroids	-ve	-ve	-ve
8.	Cardiac glycoside	+ve	+ve	+ve
9.	Anthraquinone glycoside	-ve	-ve	-ve
10.	Protiens	+ve	+ve	+ve

Table 1: Result of phytochemical analysis



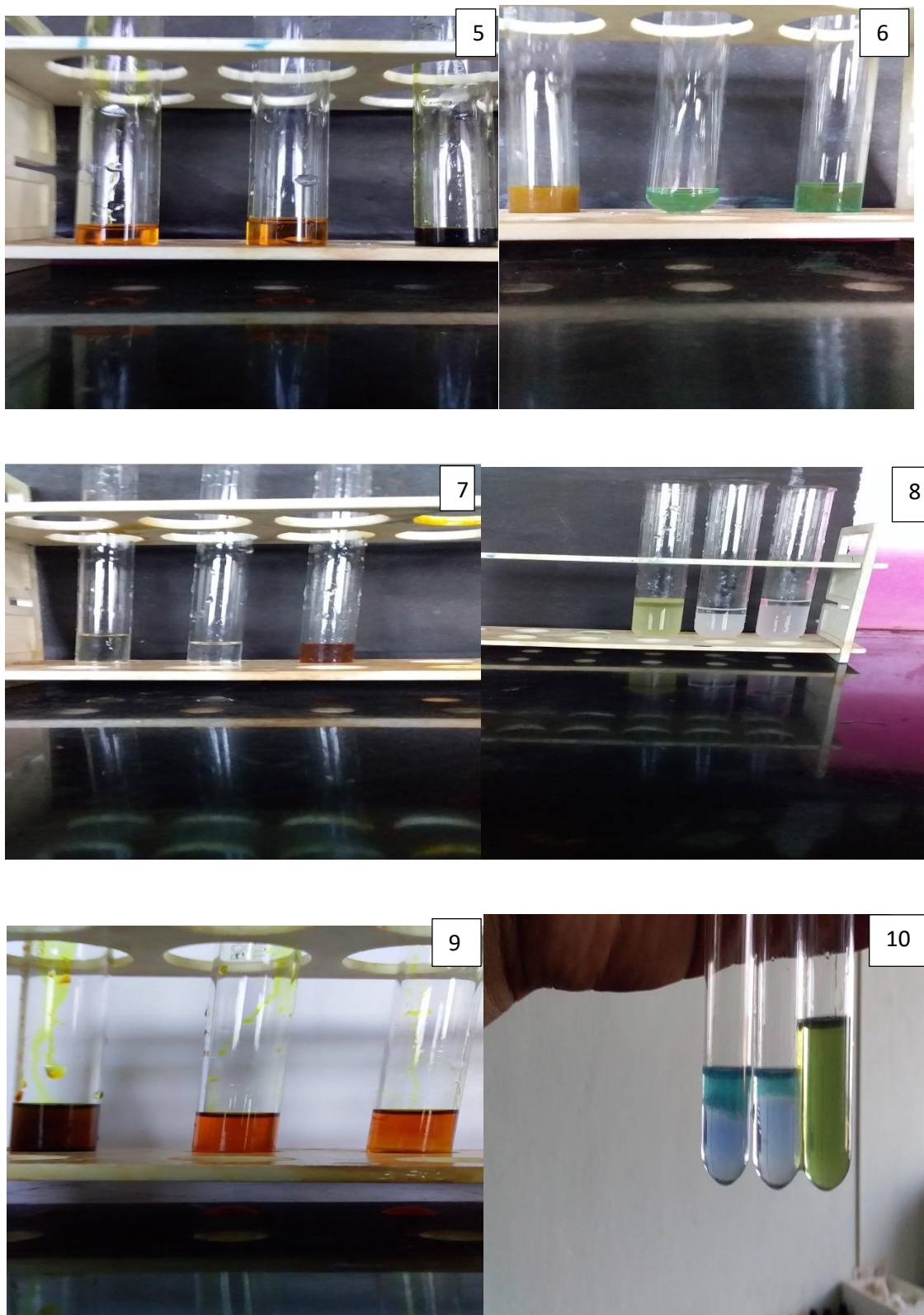


Figure : Phytochemical evaluation of bioactive phytoconstituents by colour reaction .(1) Flavinoid, (2) Alkaloid, (3) Saponin, (4) AminoAcid, (5) Tanin, (6) Carbohydrate, (7) Steroid, (8) Cardiac glycoside, (9) Anthraquinone glycoside, (10) Protein.

3.2.Antioxidant property

The OD of control is 0.11 and the OD of sample is 0.03

$$\% \text{ inhibition} = \frac{\text{OD of control} - \text{OD of sample}}{\text{OD of control}} \times 100 = \frac{0.11 - 0.03}{0.11} \times 100$$

$$\begin{aligned} \text{OD of control} &= 0.11 \\ &= 8\% \end{aligned}$$

- The percentage inhibition of oxidising power brought about by the 200C potency was found to be 8%, So it shows the antioxidant property even in potencies .

3.3 Trace elements

SL.NO	MEDICINE	COLOUR	RESULT
1.	Mother tincture	Lilec	Potassium present
2.	200C	Lilec	Potassium present

As the result of flame test trace element present in *Equisetum hyemale* is potassium ,which is present both in mother tincture and 200C also.

IV Discuss

The drug proving experiment on healthy human being bring out large number of sign and symptoms specific to each homoeopathic drug. So in effect, parallels are drawn between the disease and the drug .To answer the criticism, there is a need to focus more on our potentised medicines . By the phytochemical analysis it is concluded that saponin , cardiac glyceride ,protiens are present in the mother tincture .30C,200C of *Equisetum hyemale* .Tannins are present in mother tincture but not in potencies of *Equisetum hyemale*. Componds like Flavinoid ,alkaloid, amino acid,steroids,anthraquinone glyceride are absent in mother tincture and potencies of *Equisetum hyemale* . As the result of flame test trace element present in *Equisetum hyemale* is potassium , which is present both in mother tincture and 200C also. The percentage of inhibition of oxidising power can prove the antioxidant property shown by even a high dilution like 200C . Because of this quantum mechanism *Equisetum Hyemale* has a good action on UTI .

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