



To Comparing *Phytolacca dencandra* and *Echinacea angustifolia* Medicated Glycerol with UV- VIS and HPTLC

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ABSTRACT

Through this study comparing Phytolacca dencandra & Echinacea homoeopathic medicated glycerol in the Drug vehicle ratio of (1:4) (1:9). Preparing the Homoeopathic Medicated glycerol as Phytolacca dencandra Q, Echinacea Q, in the Drug vehicle ratio of (1:4) (1:9). The samples was divided into three main categories such as Standard sample, prepared samples and vehicle control. While passing through UV- Vis spectrophotometer (3-4) ml samples from each group were withdrawn and placed inside the Cuvette. Whereas preparing solvent plain methanol for doing HPTLC (High performance thin layer chromatography) for qualitative analysis of mixed variety of glycerol with simplex variety of glycerol. The absorbance capacity of Echinacea Angustifolia Q is 0.935 at 687.00 nm, , Phytolacca decandra Q is 0.999 at 467.00 nm, Echinacea Angustifolia Glycerol (1:4) is 0.538 at 505.00 nm, Echinacea Angustifolia Glycerol (1:9) is 0.192 at 505.00 nm, Phytolacca decandra Glycerol (1:4) is 0.615 at 400.00 nm, Phytolacca decandra Glycerol (1:9) is 0.374 at 400.00 nm.

Keywords: *Phytolacca dencandra Q, Echinacea Q, UV- VIS, HPTLC, Glycerol*

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INTRODUCTION

Glycerol, otherwise called glycerine or propane-1,2,3-triol, is a synthetic which has a large number of purposes in drug, restorative, furthermore, food businesses. It very well may be created as a side-effect from saponification and hydrolysis responses in oleochemical plants too as transesterification response in biodiesel plants [1]. Glycerol created from oleochemical or biodiesel plant is in unrefined structure that contains different contaminations, for example, slick, soluble base, and cleanser parts, a salt or diols, contingent upon the cycles and the sort of materials handled [1,2]. It is ordinarily alluded to as rough glycerol. Unrefined glycerol gotten from the biodiesel plant comprises of glycerol, water, natural also, inorganic salts, cleanser, liquor, hints of glycerides and vegetable variety [3]. While unrefined glycerol delivered from the hydrolysis response contains glycerol, water, free unsaturated fat, unreacted fatty substances, natural furthermore, inorganic salts and matter natural non-glycerol [1]. For the response of saponification of fats or oil, unrefined glycerol has been answered to contain glycerol, unsaturated fats and salts [4]. Further rough glycerol is a low worth item as its low virtue restricts its application as feedstock in enterprises. The improvement of change processes for rough glycerol to other worth added items is completely explored; in any case, the methods are not generally economically embraced in Malaysia as of now. Decontaminated glycerol can be sold as a product since it is still exceptionally expected as a significant modern feedstock particularly in different substance enterprises.

Subsequently, a advancement of sanitization techniques is important to exceptionally create refined glycerol as possible modern feedstock [5]. As of now, various decontamination methods of unrefined glycerol have been grown like regular filtration, microfiltration, and ultrafiltration utilizing natural polymer layers, straightforward refining, vacuum refining, substance and actual medicines, particle trade method and adsorption. By consolidating two or a greater amount of these methods would prompt higher purge glycerol [6]. This paper surveys the techniques utilized to create glycerol as well as the cleaning advancements.

Physical and chemical properties of glycerol

Glycerol is a natural compound and it has the synthetic equation $C_3H_8O_3$. It is interchangeable to glycerine, propane-1,2,3-triol, 1,2,3-propanetriol, 1,2,3-trihydroxypropane, glyceritol, and glycylic liquor. Glycerol is a low harmfulness liquor that comprises of three-carbon chain with a hydroxyl bunch connect to every carbon. It is gotten from regular or petrochemical feedstocks [7]. Glycerol is basically nontoxic to both human and ecological. Truly, glycerol is an unmistakable, dreary, scentless, hygroscopic, horrendous and sweet taste fluid. The limit, softening point and glimmer point of glycerol is 290 °C, 18 °C also, 177 °C separately [8]. Under typical environmental tension, glycerol has a sub-atomic load of 92.09 g/mol, a thickness of 1.261 g/cm³, furthermore, a consistency of 1.5 Pa.s [9]. The broad intermolecular hydrogen holding is liable for high consistency and limit of glycerol. Glycerol can draw in and hold the dampness from the air and it isn't adjusted when contact with the air [10]. The three hydroxyl gatherings in glycerol rule its solvency. It is totally solvent in water and alcohols, marginally dissolvable in ether and dioxane, yet, insoluble in hydrocarbon [9]. It is likewise a decent dissolvable for some substances, for example, iodine, bromine and phenol because of the presence of the hydroxyl bunch. Glycerol is synthetically steady under ordinary capacity and taking care of conditions, by the by, it might turn into dangerous when it is in touch areas of strength for with specialists, for example, potassium chlorate [10]. Glycerol is a receptive particle that groups bigger number of responses because of the presence of essential and optional alcoholic gatherings that can be supplanted with other synthetic gatherings. Moreover, it goes through different responses to shape other subsidiaries like ether, ester, amine and aldehyde.

MATERIAL AND METHODS

Site of study: CR4D (Centre of Research for development Parul University)

Duration: 2 Week

Tools: UV-VIS (spectroscopy) and HPLC (High performance thin layer chromatography)

Materials: Beaker (100 ml capacity), pipette 10 ml capacity, Glass rod, measuring cylinder (100 ml capacity)

Medicinal products: *Echinacea Angustifolia* Q, *Phytolacca decandra* Q was purchased from GMP Certified Pharmaceutical Pvt. Ltd. (SBL), Glycerine Purchase from Chemdyes Corporation Laboratory chemicals, Industrial chemicals, solvents, metallurgy chemicals, food preservatives, filter papers, safety Goods.

Vehicle: Glycerol

Preparation:

Through this research work compare glycerol with Homoeopathic medicine *Echinacea Angustifolia* Q, *Phytolacca decandra* Q, in the glycerol in definite drug and vehicle ratio of (1:4) (1:9) as compare to individualised homoeopathic medicated glycerol in (1:4) (1:9)

Standard sample:

Echinacea Angustifolia Q

Phytolacca decandra Q

Main sample

Echinacea Angustifolia Q (1:4)

Phytolacca decandra Q (1:4)

Echinacea Angustifolia Q glycerol (1:9)

Phytolacca decandra Q glycerol (1:9)

Control sample:

Glycerol

Steps to follow;

Sterilization: Cleansing of all the equipment's by strong alcohol with drying by Hot air oven for 15 minutes.

Measurement: Take appropriate amount of Medicine and vehicle with pipette (10 ml capacity) in the clean, dry beaker. Like; Medicine

- ***Echinacea Angustifolia* glycerol (1:4)**
Echinacea Angustifolia Q- 5 ml

- glycerol- 20 ml
- ***Phytolacca decandra* glycerol (1:4)**
Phytolacca decandra Q- 5 ml
glycerol- 20 ml
- ***Echinacea Angustifolia* glycerol (1:9)**
Echinacea Angustifolia Q- 2 ml
Glycerol- 18 ml
- ***Phytolacca decandra* glycerol (1:9)**
Phytolacca decandra - Q- 2 ml
Glycerol -18 ml

Mixing:

Apply gentle mixing the given formulation by glass rod until and unless if homogeneous mixture formed.

Filling:

The prepared formulation of Homoeopathic medicated glycerol should be filled in the hard glass bottle. Which should be clean, sterile and non-coloured bottles.

Storage:

The given formulation should be preserved into the hard glass bottle, which should be away from dampness, sunlight, strong smelling bottles and cool, dark place.

Analysis

The prepared formulation of in all ratio were categorized into three main groups. Such as; Standard group, Main sample group and Control group. Around (3-4) ml of samples from each group were placed in the sterile, dry cuvette in UV- VIS Chamber.

Techniques

Collections of plants

The Mother tincture *Echinacea Angustifolia* Q, *Phytolacca decandra* Q were supplied by GMP Certified SBL Pharmaceutical company.

Preparation OF Materials

Through this research work compare glycerol with Homoeopathic medicine *Echinacea Angustifolia* Q, *Phytolacca decandra* Q, in the glycerol in definite drug and vehicle ratio of (1:4) (1:9) as compare to individualized homoeopathic medicated glycerol in (1:4) (1:9)

Preparing the Sample

After mixing one part *Echinacea Angustifolia* Glycerol (1:4) , *Echinacea Angustifolia* Glycerol (1:9) , , *Phytolacca decandra* Glycerol (1:4) , , *Phytolacca decandra* Glycerol (1:9) with nine parts methanol separately and heat the mixture until homogenous mixture forms indirectly for ten minutes in a hot water bath.

Establishing a Solvent Framework

For the extraction procedure, several solvent systems were examined; however, the Sample: methanol (1:9) v/v

An Illustration of an Application

The pre-dosage volume is 0.20 microliters, and the sample solvent type is methanol. 150 Nl/s is the dose rate.

Chromatogram Formation

Following the application of the sample, the chromatogram was created in a 100 × 100 mm plate format. The following were the parameters: application at Position Y: 8.0 mm, length: 8.0 mm, width: 0.0 mm.

RESULTS AND DISCUSSION

The absorbance capacity of *Echinacea Angustifolia* Q is 0.935 at 687.00 nm, *Phytolacca decandra* Q is 0.999 at 467.00 nm, *Echinacea Angustifolia* Glycerol (1:4) is 0.538 at 505.00 nm, *Echinacea Angustifolia* Glycerol (1:9) is 0.192 at 505.00 nm, *Phytolacca decandra* Glycerol (1:4) is 0.615 at 400.00 nm, *Phytolacca decandra* Glycerol (1:9) is 0.374 at 400.00 nm, Whereas in HPTLC the *Echinacea Angustifolia* Q is 0.826, *Phytolacca decandra* Q is 0.825, *Echinacea Angustifolia* Glycerol (1:4) is 0.781 *Echinacea Angustifolia* Glycerol (1:9) is 0.785, *Phytolacca decandra* Glycerol (1:4) is 0.744, *Phytolacca decandra* Glycerol (1:9) is 0.799 Rf value [Fg 1-6].

In this research study, we formulated Homoeopathic medicated glycerol by separately combining *Echinacea Angustifolia* Q and *Phytolacca decandra* Q with glycerol as the primary vehicle. The drug-to-vehicle ratios employed for these formulations were (1:4) and (1:9). Subsequently, standardization was performed using a UV Visible spectrophotometer (double beam), while HPTLC (High Performance Thin Layer Chromatography)

served as a versatile analytical technique for the detection, quantification, and isolation of components within mixtures. Its cost-effectiveness, ability to analyze multiple samples simultaneously, and utility in reverse engineering and fingerprinting make it a widely utilized method in forensic science, pharmaceuticals, food analysis, and environmental monitoring. This approach facilitates the determination of various compositional values of *Echinacea Angustifolia* Q and *Phytolacca decandra* Q in glycerol, corresponding to their R_f values. We found that *Echinacea Angustifolia* Q, *Phytolacca decandra* Q in Glycerol in drug vehicle ratio as (1:9) gives better results as compare to (1:4). Results described in Table 1-7.

Figure. No. 1. Absorbance value of *Echinacea Angustifolia* Q

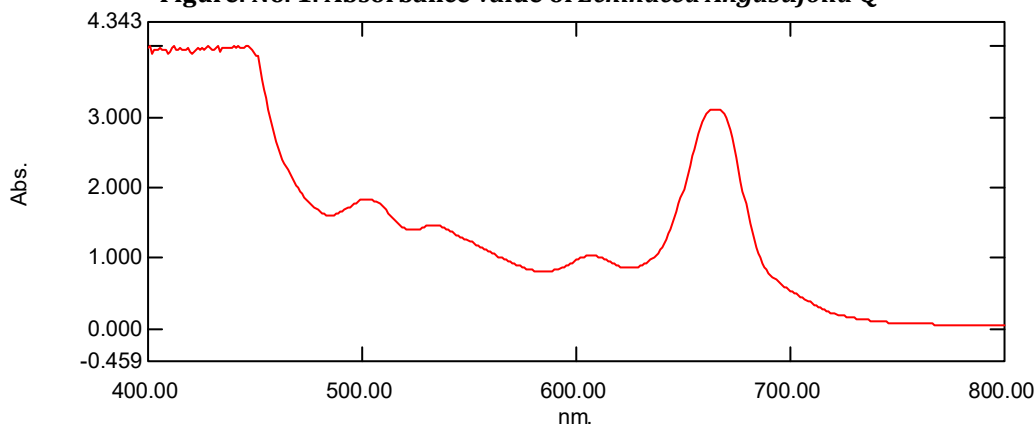


Figure. No. 2. Absorbance value of *Phytolacca decandra* Q

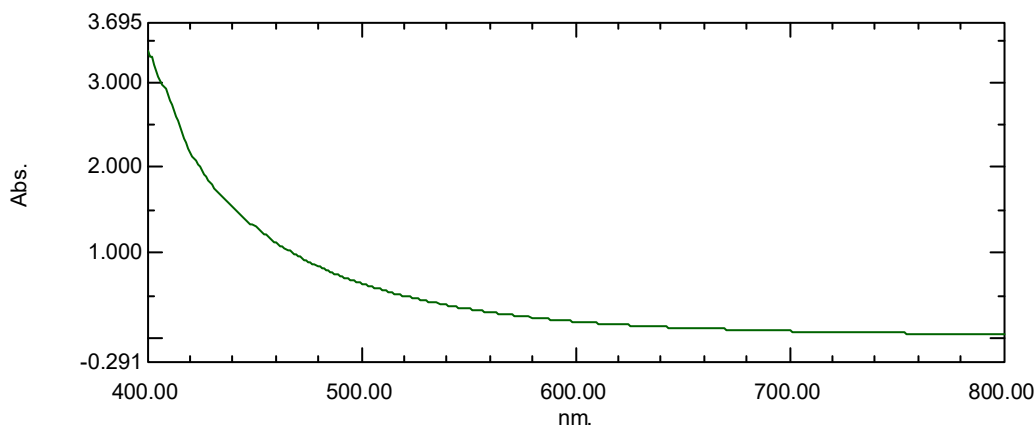


Figure. No. 3. Absorbance value of *Echinacea Angustifolia* Glycerol (1:4)

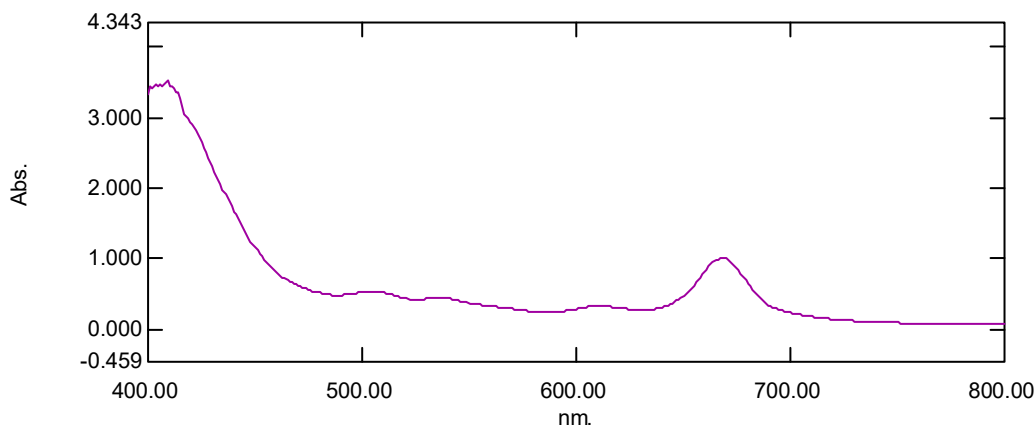


Figure. No. 4. Absorbance value of *Echinacea Angustifolia* Glycerol (1:9)

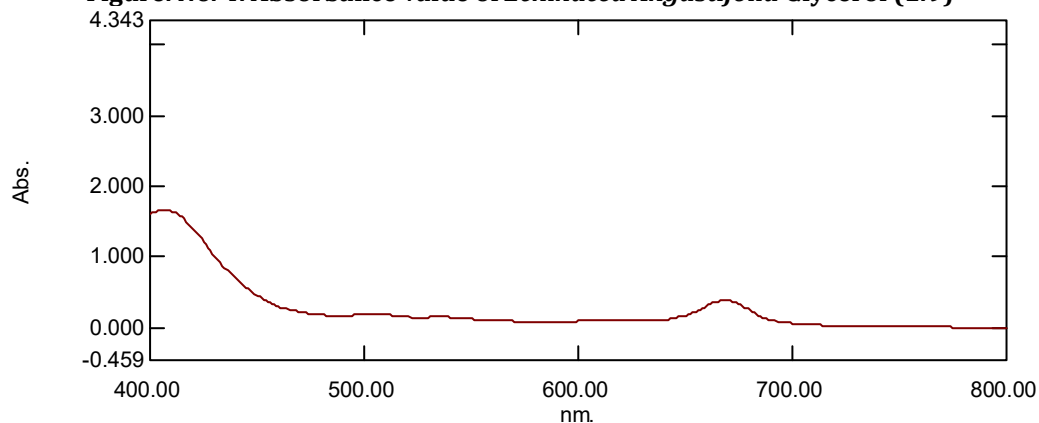


Figure. No. 5. Absorbance value of *Phytolacca decandra* Glycerol (1:4)

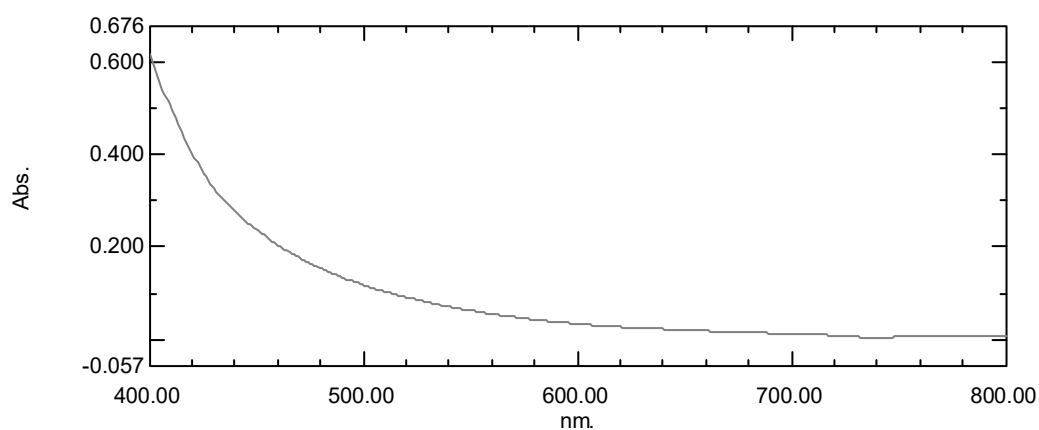


Figure. No. 6. Absorbance value of *Phytolacca decandra* Glycerol (1:9)

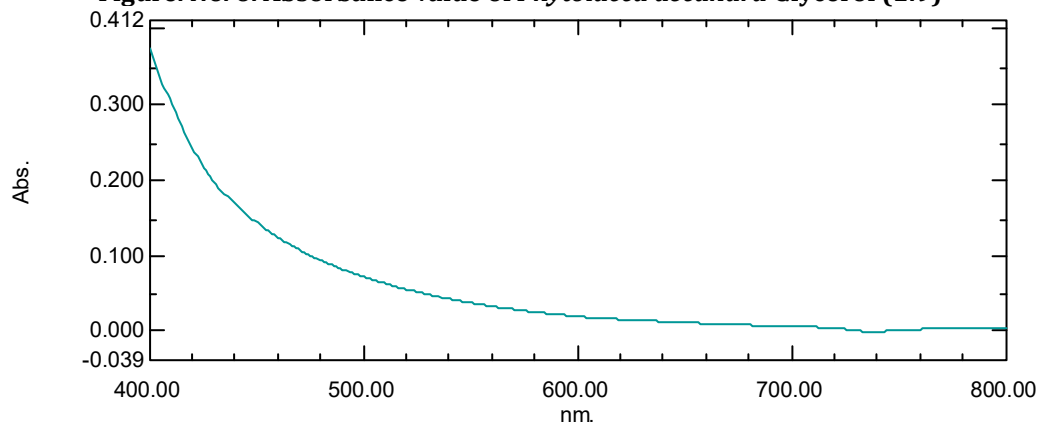


Table. No. 1 HPTLC analysis of Glycerol

Peak#	Start		Max			End		Area		Manual peak	Substance Name
	R _F	H	R _F	H	%	R _F	H	A	%		
1	0.765	0.0133	0.838	0.0471	100.0	0.901	0.0235	0.00393	100.0	No	

Table. No. 2 HPTLC analysis of *Phytolacca decandara* Q

Peak#	Start		Max			End		Area		Manualpeak	Substance Name
	R _F	H	R _F	H	%	R _F	H	A	%		
1	0.000	0.0000	0.018	0.0405	32.78	0.044	0.0081	0.00086	20.04	No	
2	0.825	0.0323	0.858	0.0830	67.22	0.899	0.0246	0.00345	79.96	No	

Table. No. 3 HPTLC analysis of *Echinacea Angustifolia* Q

Peak #	Start		Max			End		Area		Manual peak	Substance Name
	R _F	H	R _F	H	%	R _F	H	A	%		
1	0.000	0.0000	0.017	0.0297	26.20	0.051	0.0025	0.00063	14.44	No	
2	0.826	0.0335	0.863	0.0838	73.80	0.907	0.0272	0.00373	85.56	No	

Table. No. 4 *Echinacea Angustifolia* Glycerol (1:9)

Peak #	Start		Max			End		Area		Manual peak	Substance Name
	RF	H	RF	H	%	RF	H	A	%		
1	0.785	0.0252	0.832	0.0520	100.0	0.907	0.0232	0.00427	100.0	No	

Table. No. 5 HPTLC analysis of *Echinacea Angustifolia* Glycerol (1:4)

Peak#	Start		Max			End		Area		Manual peak	Substance Name
	R _F	H	R _F	H	%	R _F	H	A	%		
1	0.781	0.0322	0.826	0.0649	100.0	0.921	0.0255	0.00571	100.0	No	

Table. No. 6 HPTLC analysis of *Phytolacca decandara* Glycerol (1:9)

Peak #	Start		Max			End		Area		Manual peak	Substance Name
	RF	H	RF	H	%	RF	H	A	%		
1	0.799	0.0272	0.842	0.0519	100.0	0.899	0.0250	0.00358	100.0	No	

Table. No. 7 HPTLC analysis of *Phytolacca decandara* Glycerol (1:4)

Peak #	Start		Max			End		Area		Manual peak	Substance Name
	R _F	H	R _F	H	%	R _F	H	A	%		
1	0.744	0.0223	0.838	0.0422	100.00	0.929	0.0222	0.00581	100.00	No	

CONCLUSION

Through this research work, it was concluded that while preparing a simplex variety of homoeopathic medicated glycerol (Ac medicated glycerol which contains single Medicine) gives better results in qualitative aspect.

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