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To preparing *Ruta G* lignocaine jelly with quality assessment done by UV- VIS and FTIR

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Abstract
Background: Through this study preparing the *Ruta G* lignocaine jelly with quality control done by UV- VIS and FTIR.
Methodology: Preparing the Homoeopathic Medicated lignocaine jelly with the help of *Ruta G* without heating in the proportion of (1:1) (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 While passing through UV-Vis spectrophotometer (3-4) ml samples from each group were withdrawn and placed inside the Cuvette.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 one drop from each group was placed over the lens of FTIR.
Results: The absorbance capacity of *Ruta G* Mother tincture is 0.394 at 598 nm, Ruta G jel at (1:1) is 0.712 at 598 nm, *Ruta G* jel at (1:4) is 1.707 at 554.00, Ruta G jel at (1:9) is at 1.509 at 555.00 nm. Whereas in FTIR analysis of Ruta graveolens proved the presence of alkenes, alkanes, and alkyl halides.

Keywords: *Ruta G*, UV- VIS, FTIR, lignocaine jelly

Introduction
Ruta graveolens L. [Rutaceae] is famously referred to in Hindi as 'Sadab/Satap', in English as 'regret/unpleasant spice' and in German "Garten Raute'. Regret has been esteemed for quite a long time as a unpleasant spice. The antiquated Greeks and Romans held the plant in high regard. Mourn was asserted to be the cure which Mercury gave it to Ulysses to check the tranquilized drink presented by Circe, the Conjurer. As per Mrs. Lament, the adequacy of Ruta in different sicknesses roused the Greeks to name it Ruta after the word reuo, for example to liberate. Legends utilized finely hacked leaves as plates of mixed greens as a stomach related help. In the medieval times it was accepted that it warded off plague and was credited with hostile to mystical powers as well as purportedly relieved incalculable ills [1]. It is a notable solution for the treatment of different sorts of issues in the Ayurvedic, Homeopathic arrangement of medication in India [2]. Regret is the local of the South of Europe, developed in Northern gardens. Regret was first referenced by Turner, 1562, in his Natural and has since become one of the most popular and generally broadly developed simples for therapeutic and unattractive use. It is referenced by Hahnemann in Materia Medica Pura Vol. II pg 437. T.F. Allen in Reference book of Unadulterated Materia Medica, Vol. VIII, P.431, Hering in The Directing Side effects of our Materia Medica, Clarke in Word reference of commonsense Materia Medica. It has antihysteric, emmenagogic, ophthalmic, vermifuge, carminative, antiepileptic, revulsive, Antihelminthic, failed, spasmolytic properties. It shows up to influences both harmfully and remedially the stringy and hard tissues, particularly in the area of joints [3]. This is a restorative plant which has been customarily utilized as soothing, antihelminthic, feminine and gastrointestinal issues [4]. It is additionally utilized as hypotensive, antifertility and its mitigating impacts have been guaranteed as further pain relieving activities of this plant [5]. Ruta graveolens contains a medicinal oil, where the fundamental parts are 2- hendecanone (2-undecanone, methylnonylketone up to 60%) and 2- nonanone (methylheptylketone) in addition to a few more ketones and comparing auxiliary alcohols. Methyl anthranilate and anethole glycol are additionally revealed. The terpenoids addressed are principally by limonene, αpinene, cuminaldehyde and l, 8-cineol. A part answerable for the severe taste is rutin (7 to 8% in the dried leaves), a polyphenolic flavonolone glycoside containing the disaccharid rutinose as sugar part. [6].

Besides, R. graveolens shows the presence of synthetic substances like kokusaginine, skimmianine, graveolinine, 2,3- dohydrokokusaginine, γ-fagarine, dictamnine, arborinine, rutamine, rutacridone, ribalinium, isopropyldihydroxy furoquinoline; xanthotoxin and an aliphatic ketone; rutin, isoimperatorin and psoralen; furocoumarin - β-D-glucopyranosiderutarin and furocoumarin-rutaretin etc. [3]. The optional metabolites 2-Nonanone, 2-undecanone, chalepensin and geijerene are the primary constituents tracked down in the concentrates from Ruta graveolens leaves, blossoms, stems furthermore, roots separately [7].

Lignocaine Jelly
Effective nearby sedation offers a significant assistant to a few plastic medical procedure strategies, given that it does not cause foundational poisonousness or forestall the recuperating system. Ingestion of a clean effective lignocaine jam was surveyed in patients going through treatment of skin unite benefactor destinations, fold contributor locales and consumes. There was a stamped level of assimilation just in patients with warm consumes, in which case it relied upon the surface region of the injury; albeit no foxic impacts because of assimilation were noted, alert in measurement is prudent. No entanglements of mending inferable from the arrangement utilized were experienced [8].

Materials and Methodology
Type of study: Analytical study

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

Duration: 2 Week

Tools
UV-VIS (spectroscopy) and FTIR (Fourier Transform infrared spectroscopy)

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

Medicinal products
Ruta G - Q was purchased from GMP Certified Pharmaceutical Pvt. Ltd. (SBL), Lignocaine jelly from GMP Certified Pharmacy Shop.

Vehicle: Preparation

Lignocaine Jelly
Through this research work preparing glycerol with the help of *Ruta G* - Q in definite ratio like (1:1), (1:4) and (1:9). Afterwards divide the whole preparation into three main categories like; Standard sample, Main sample, Control sample.

Standard sample: *Ruta graveolens* - Q

Main sample
Ruta graveolens Jelly (1:1)
Ruta graveolens Jelly (1:4)
Ruta graveolens Jelly (1:9)

Control sample: Lignocaine jelly

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

Ruta graveolens Jelly in (1:1)
Ruta graveolens Q- 5 ml
Lignocaine jelly- 5 ml

Ruta graveolens Jelly in (1:4)
Ruta graveolens Q - 5 ml
Lignocaine jelly - 20 ml

Ruta graveolens Jelly in (1:9)
Ruta graveolens Q- 2 ml
Lignocaine jelly - 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.

Labelling
Paste the label on the bottom of hard glass bottle as;
a) Name of formulation
b) Name of Medicine with quantity
c) Name of vehicle with quantity
d) Drug and vehicle ratio
e) Manufacture Date
f) Manufacturer By
g) Indications
h) Storage

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.

Results
The absorbance capacity of *Ruta G* Mother tincture is 0.394 at 598 nm, Ruta G jel at (1:1) is 0.712 at 598 nm, Ruta G jel at (1:4) is 1.707 at 554.00, Ruta G jel at (1:9) is at 1.509 at 555.00 nm. Whereas in FTIR analysis of Ruta graveolens proved the presence of alkenes, alkanes, and alkyl halides.

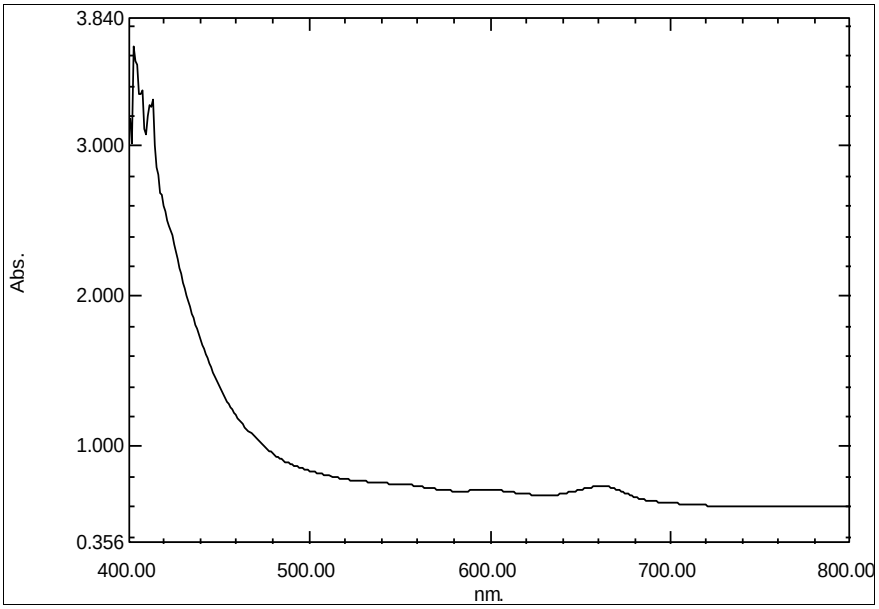

Fig 1: Absorbance value of *Ruta G* Lignocaine Jelly (1:1)

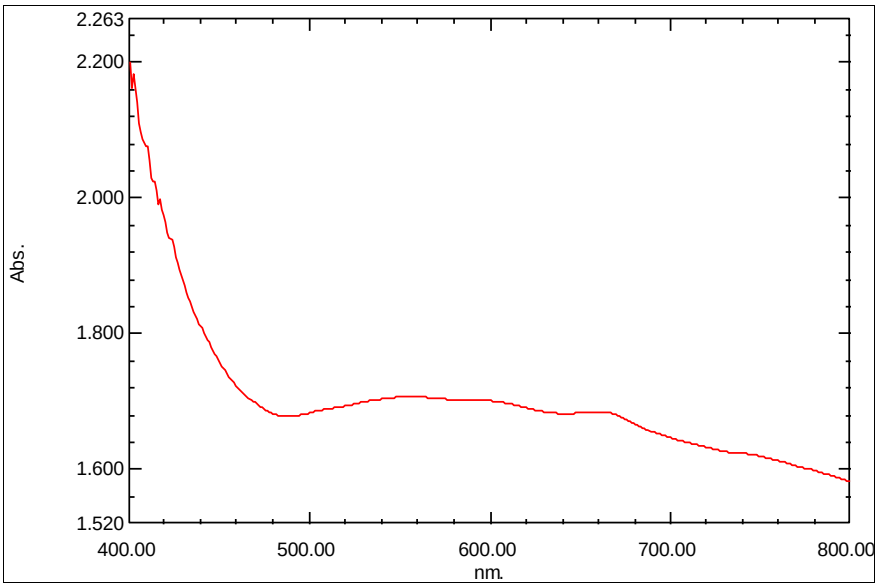

Fig 2: Absorbance value of *Ruta G* Lignocaine Jelly (1:4)

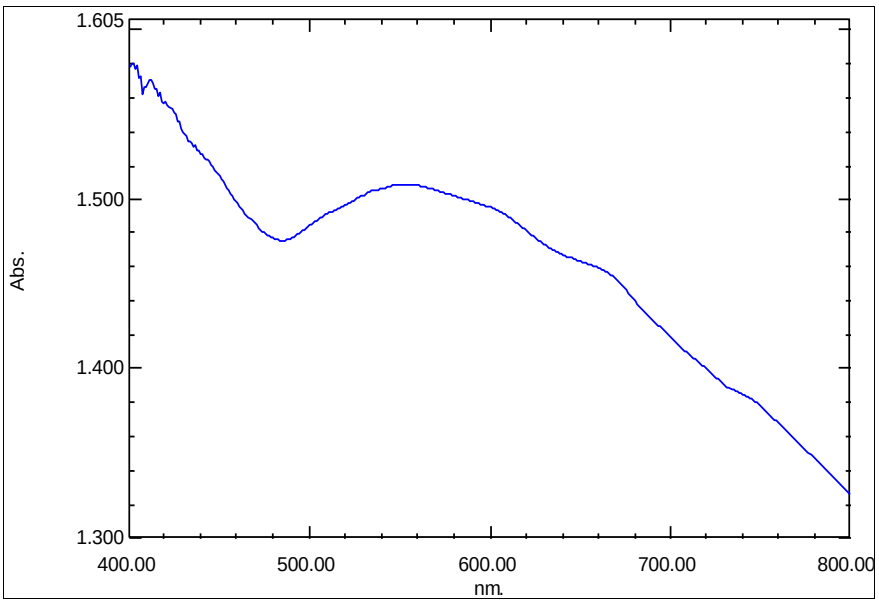

Fig 3: Absorbance value of *Ruta G* Lignocaine Jelly (1:9)

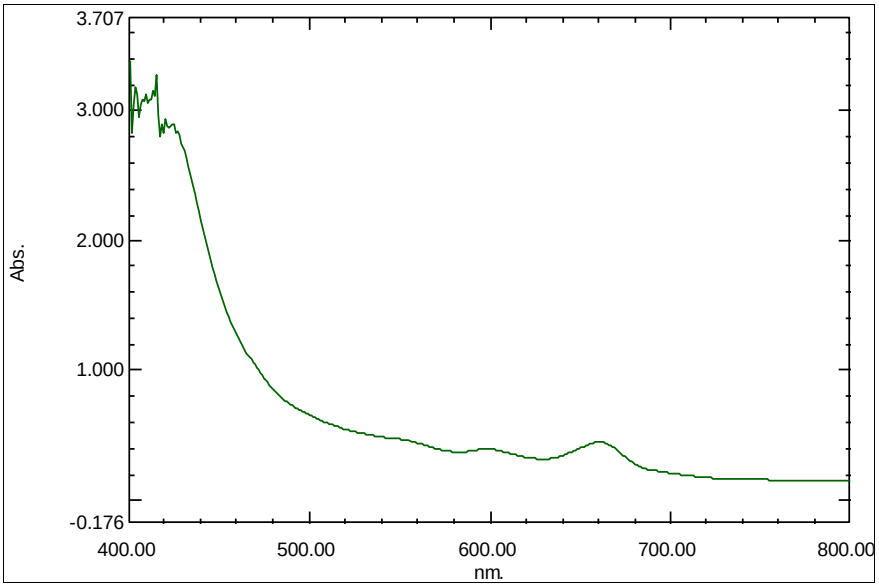

Fig 4: Absorbance value of *Ruta Graveolens*- Q

Table 1: FTIR Analysis of *Ruta graveolens* methanolic extract

Peak (Wave number cm-ˡ)	Functional group assignment	Group frequency
667.37	alkyl halides	600–800
873.75	Alkenes	650-1000
921.97	Alkenes	650-1000
1004.91	alkyl halides	1000-1400
1014.56	alkyl halides	1000-1400
1242.16	alkyl halides	1000-1400
1317.38	alkyl halides	1000-1400
1595.13	Aromatic	1400-1600
1614.42	Amide	1550-1640
3228.84	Amide	3100-3500

Table 2: FTIR Analysis of *Ruta graveolens* Lignocaine jelly (1:1) methanolic extract

Peak (Wave number cm-ˡ)	Functional group assignment	Group frequency
667.37	alkyl halides	600–800
873.75	Alkenes	650-1000
921.97	Alkenes	650-1000
1044.36	alkyl halides	1000-1400
1014.56	alkyl halides	1000-1400
1242.16	alkyl halides	1000-1400
1317.38	alkyl halides	1000-1400
1595.13	Aromatic	1400-1600
1642.39	Amide	1550-1640
3340.90	Amide	3100-3500

Table 3: FTIR Analysis of *Ruta graveolens* Lignocaine jelly (1:4) methanolic extract

Peak (Wave number cm-ˡ)	Functional group assignment	Group frequency
555.43	alkyl halides	600–800
873.75	Alkenes	650-1000
921.97	Alkenes	650-1000
1004.91	alkyl halides	1000-1400
1014.56	alkyl halides	1000-1400
1242.16	alkyl halides	1000-1400
1317.38	alkyl halides	1000-1400
1642.86	Aromatic	1400-1600
1614.42	Amide	1550-1640
3282.07	Amide	3100-3500

Table 4: FTIR Analysis of *Ruta graveolens* Lignocaine jelly (1:9) methanolic extract

Peak (Wave number cm-ˡ)	Functional group assignment	Group frequency
546.63	alkyl halides	600–800
873.75	Alkenes	650-1000
921.97	Alkenes	650-1000
1045.59	alkyl halides	1000-1400
1014.56	alkyl halides	1000-1400
1242.16	alkyl halides	1000-1400
1317.38	alkyl halides	1000-1400
1638.35	Aromatic	1400-1600
1614.42	Amide	1550-1640
3352.66	Amide	3100-3500

Conclusion

While preparing *Ruta graveolens* jelly gives better result in drug and vehicle ratio of (1:1) as compared to other drug and vehicle ratio without indirect heating.

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References

1. Frans Vermeulen. The Arcana of Materia Medica Illuminated. 2002;2:1152.
2. Nadkarni AK. Indian Materia medica, Popular Prakashan, Bombay; c1976.
3. Gopi KS. Encyclopdia of Medicinal Plant used in Homoeopathy, Aiy Publications, Kozhikode 673015. Kerala, India; c2000, 1(1).
4. Skidmore-Roth L. Mosby's Handbook of Herbs and Natural Suplements, 1st ed., Mosby, New York; c2001.
5. Anonymous. Indian Herbal Pharmacopoeia, Vol. I and II, Ministry of health and family welfare, Govt. of India; c1986.
6. Gernot Katzer; c2000.

http://www.unigraz.at/~katzer/engl/Ruta_gra.html
7. Stashenko. 2000. (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10869689 &dopt=Abstract)Read, JM & Bach PH. Sterile topical lignocaine jelly in plastic surgery-an assessment of its systemic toxicity. South African Medical Journal. 1980 Apr 1;57(17):704-6.
8. Read, JM & Bach PH. Sterile topical lignocaine jelly in plastic surgery-an assessment of its systemic toxicity. South African Medical Journal. 1980 Apr 1;57(17):704-6.