



Medicinal Plants

NYCTANTHUS ARBOR TRISTIS - COMPARATIVE ASSESSMENT ANTI-INFLAMMATORY ACTIVE COMPOUND DETECTION IN OIL AND BIO-ENZYME SAMPLE

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ABSTRACT Biological defense mechanism is important tool aspects in different conditions such as infection,tissue damage,damage of affected part,musculoskeletal disorders,internal and external stresses in daily activities,stress and repair pathway mechanism,pro-inflammatory signal and nitric oxide production.Our project aim is to focus on identification of abnormal immune response,Joint tissue injury,oxidative stress at wound site,coupling reaction of lipopolysaccharide and epithelial cells to stimulate ICAM-1.Out of AI related different chemical constituents .Nycatanthus arbor tristis has utilised in AI,analgesic as well as antimicrobial activity due to presence of cinnamic aldehyde and hydroxy loganin as well as Kaempferol and rutinoid .These Flavonoid glycoside and Iritoid glycoside will tend to reduce cold restraint stress as well as repair pathway mechanism which inturn reduces immunoglobulin E as well as IgG1.Beyond that information,our herbarium analytical method is useful infinding plant species dormancy and virulent character in order to improve restorative ecology.Bio-enzyme method tend to identify emulsifying property as well as antiinflammatory action.

KEYWORDS : Nycatanthus Arbor Tristis, Cold Restraint Stress, Flavonoid Glycoside, Iritoid Glycosid.

INTRODUCTION

Cold restraint stress is a major marked increases in corticosterone and thyroxine levels but decreases insulin level.Due to decrement of blood pH ,blood plasma glucose,cold restraint procedures would increase potassium ion and urea excretion and decrease sodium and chloride ion with excretion.Relating concept biochemical parameters,cold restraint procedures helps to induce lactations for 305 days.Extreme cold exposure will alter cognitive and performance,behaviour and motor performance but currently reverse mechanism happened in learning process in indian students due to chronic stress sensitivity character (Cuskun. T.et.al,1996,Nuray erin.1996,Yuan Zhang.et.al.2021)

In order to rectify problematic scienario, Parijat oil is useful in aroma therapy due to presence of Iridoid glycoside belongs to 7-o-trans cinnamoyl -7-o-hydroxy loganin which inturn utilised in aromotherapy as well anti inflammatory action due to emulsifying nature at Day 37 analytical profile and Flavonoid glycoside belongs to Nicotiflorin in coupling with activated charcoal is having AI and analgesic action to proceed down regulating nuclear factor -Beta (TNF-KB) and P-38 mitogen activated protein kinase pathway (Mercy JP, 2022).

Nycatanthus arbor tristis is composed of tannins, Phenols, Triterpeneol esters, terpenoids and glycosides. This article is focusing about flavonoid glycoside and Iritoid glycoside.

Chemistry of Flavonoid Glycoside

Nycotiflorin is useful in stress associated with alzheimer patiernts, dementia patients and cancer patients. Rutin p substance involved in gut enzymatic action on hydrolysis reaction which in turn to produce flavonoid glycone. Flavonoid glycone acts as biological active compound at DAY 21.

This Flavonoid glycone could participate in rectification of vasoconstriction and decrement of kidney blood flow happened due to PGE2 and TXA2. Neurological deficits are rectified by inhibition of reactive oxygen species and inhibition of P-38 mitogen activated protein kinase pathway (Awadhesh Kumar Mishra, .et.al.2016).

Chemistry of Iridoid Glycoside:

7-o-trans cinnamoyl-7-o-hydroxy loganin is useful in stress associated with cold restraint stress. Cinnamaldehyde substance involved in alkylation reaction to produce iridoid glycone. Iridoid glycone acts as biological active compound at DAY 28 (Sengamalam R et.al.2024, Muruganandam AR et.al.2022).

Methodology:**Procedural Instructions:****Hot-enflurge Method:****Sampling Method: 1**

Select 200 grams of fresh flower and dried under sunlight 6 hours and add 300 ml coconut oil as a base.Heating time was maintained as one hour,strained using muslin cloth. Yellow colour parijat oil was obtained (Parvathy.R.S.et.al.2023),

Sampling Method: 2

Select 200 grams of fresh flower and add 300 ml coconut oil as a base. Heating time was maintained as one hour. Strained using muslin cloth. Orange red colour parijat oil was obtained (Vajravijayan.S et.al.2013)

Sampling Method: 3

Select 200 grams of corolla part flower and add 300 ml coconut oil as a base. Heating time was maintained as one hour. strained using muslin cloth. Pasi green colour parijat oil was obtained. (Subhajit Ghosh et.al,2022).

Sampling Method: 4

Select 200 grams of Nycatanthus part flower and add 300 ml coconut oil as a base. Heating time was maintained as one hour. Strained using muslin cloth. Orange red colour parijat oil was obtained (George W et.al,2014).

Sampling Method: 5

Select 200 grams of Nycatanthus part flower and add 250 ml coconut oil as a base. Heating time was maintained as one hour. Strained using muslin cloth. Orange red colour parijat oil was obtained (Kiran Shahane et.al,2023).

Sampling Method: 6

Select 200 grams of Nycatanthus part flower and add 200 ml coconut oil as a base. Heating time was maintained as one hour. Strained using muslin cloth. Orange red colour parijat oil was obtained(Amit Sah et.al,2022).(FIG.1)

Sampling Method: 7

Select 200 grams of corolla part flower and add 250 ml coconut oil as a base. Heating time was maintained as one hour. Strained using muslin cloth. Orange red colour parijat oil was obtained (Staiger.C et.al, 2013).

Sampling Method: 8

Select 500 grams fresh flower and mix up 500 ml coconut oil. Keep aside for four weeks with repeated stirring. Coconut oil fat saturate with fragrant of flowers. At end of fourth weeks, enflurge-pomade has enflurge shown fragrance.

From that 50 ml enflurge sample was mixed with 25 ml ethyl alcohol to proceed infusion of fragrant molecules into alcohol. Examine fragrant nature of parijat oil using paper dropping method after 24 hours. Place drop of oil on paper and observe fragrant smell using nociceptive stimuli.

Optically inactive corolla form was mixed with chemical reacting molecule ethanol which inturn produce orange red reflection as a optical inactive form into optical active yellow colour. Then anti inflammatory chemical substance 7-0-trans cinnamoyl -7-0-acetyl-6 β - hydroxyloganin was identified using sodium hydroxide using, [0.1M NaOH] as a titrant (Jonatas Rafael de Oliveira et.al,2019).

Sampling Method :9

Select 500 grams Nyctanthus part flower and mix up 500 ml coconut oil. Keep aside for four weeks with repeated stirring. Coconut oil fat saturate with fragrant of flowers. At end of fourth weeks, enflurge-pomade has enflurge shown fragrance.

From that 50 ml enflurge sample was mixed with 25 ml ethyl alcohol to proceed infusion of fragrant molecules into alcohol. Examine fragrant nature of parijat oil using paper dropping method after 24 hours. Place drop of oil on paper and observe fragrant smell using nociceptive stimuli (Di Napoli and Zucchetti et.al, 2021).(FIG.2)



Fig.1

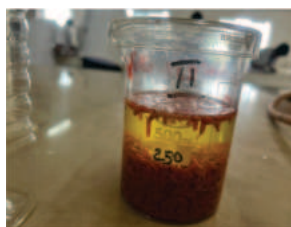


Fig.2

Confirmatory Testing Procedure:

Confirmative Test: 1

Out of 9 analytical test examination, Corolla part has shown highest fragrance smell compared with fresh part, dry part and Nyctanthus part.

Optically inactive corolla form was mixed with chemical reacting molecule ethanol which inturn produce orange red reflection as a optical active form, Then anti inflammatory chemical substance 7-0-trans cinnamoyl -7-0-acetyl-6 β - hydroxyloganin yellow colour was identified using sodium hydroxide using, [0.1M NaOH] as a titrant (Bayarsaikhan E et.al,2025), (Enkhtuul Bayarsaikhan et.al,2025), (Mohamed A. Ashour et.al,2025), (Mohamed A. Ashour et.al,2025), (Amanda G. Smith et.al,2021)

Confirmative Test: 2

Select strained sample and mixed up schiff reagent which inturn produces reddish brown colour (Hansika Varshney et.al,2024), (Sonia Yadav et.al,2023), (Xin-Sheng Liu et.al,2021), (Sung Min Kim et.al,2020), (Gessilda Alcantara Nogueira de Melo et.al,2012), (Xirali Tursun et.al,2016).

Confirmative Test: 3

Select strained sample and mixed up potassium hydroxide and chloroform. Heat up 5 mins which inturn produces brown colour precipitate on top (Malshani Chathuranika Nissanka et.al, 2023), (Ruchika Nandha et.al, 2014), (Rushmi Kruthiga .R et.al, 2024),

Confirmative Test:4

Comparative Assessment Of Anti Inflammatory Using Bio-analytical Method:

Ratio based project was structured (1:3:10:15) using saccharum officinarum(Jaggery), borassuslabelifer.L(Karupati), Nyctanmthus-arbor leaves. These sampling materials were packed in one litre container using sequence based and Non-Sequence based arrangement with or without addition of yeast.

Evaluate five different sampling at end of week 37 & week 38 and 90 days using schiff reagent and it was shown reddish brown colour. (test-1).

Evaluate five different sampling at end of week 37 & week 38 and 90 days using Chloroform and potassium hydroxide through cross verification of chloro carbene and it was shown reddish brown colour precipitate at top of layer.(test-2).

Evaluate five different sampling at end of week 37 & week 38 and 90 days using Hindsberg reagent and it was not shown any colour reaction due to absence of primary amine.(test-3).

Evaluate five different sampling at end of week 37 & week 38 and 90 days using diethyl oxalate and it was not shown any chemical reaction due to absence of primary amine.(test-4).

Evaluate five different sampling at end of week 37 & week 38 and 90 days using CS2-Hgcl2 and it was not shown any chemical reaction due to absence of primary amine.(test-5).

From the above test information, anti inflammatory chemical substance 7-0-trans cinnamoyl -7-0-acetyl-6 β - hydroxyloganin red colour was identified using parijat leaves and confirmed about double bond presence, alcohol and aldehyde containing structures (Akila and Manickavasakam et.al,2013) (Dongli Li et.al,2020).

Confirmative Test :5

Comparative Assessment Of Anti Inflammatory Using Bio-analytical Method:

2ml of filtered bio enzyme sample mixed with 2 ml of water, 1 ml of 5% Ferric chloride and 2 ml of ammonium chloride.shake well.keep aside for one minute.

In this reaction, Phenol acts as a ligand and coordinates with iron ion from ferric chloride. This forms a phenol-iron complex-(ferric phenoxide ion) olive green colour complex-positive results were obtained at 144 day. From that reaction, 7-0-trans cinnamoyl-7-0-acetyl-6 β - hydroxyloganin has shown better stability upto 144 day as well as anti inflammatory nature (Richard E et.al, 2001)

RESULTS AND DISCUSSION

Nycotiflorin named as kaempferol-3-0-rutinoside $C_{27}H_{30}O_{15}$ having glycone moiety aryl substituted benzopyran which follow up skimate pathway mechanism reacted with cytochrome P-450 dependent enzyme, NADPH and O_2 . Because of aryl migration from flavonoid-aryl substituted benzopyran to Isoflavonoid, considering as active compound-1 in parijat oil sample.

Kaempferol having active hydrogen at 5' position and carbon number 3',4' and 6' could participate in skimic acid pathway mechanism .Because of palm jaggery addition in bioenzyme sample would involve in attachment of glucose molecule in glycosidic linkage. Due to fermentation process and addition of acetic acid as chemical reacting species acetic acid to form skimic acid which will involve in conversion of 4' deoxy-7-0-Glucose Hesperidin. This megenta colour compound 4' deoxy-7-0-Glucose Hesperidin (active compound.2)could inhibit tyrosine kinase enzyme due to presence of C6H3 poly ketide compound at position carbon no.1

7-0-trans cinnamoyl -7-0-acetyl-6 β - hydroxyloganin having dipole moment zero reacted with ethanol as a chemical reacting substance and proceed steps of partition coefficient.7-OH replaced by ethyl group in order to increase alkylation inturn produces methyl Arbortristoside A (active compound.3)having anti inflammatory property in parijat oil. Yellow colour was obtained due to addition of sodium hydroxide as a titrant.

Due to addition of jaggery and karupatti among five different formula in fresh parijat leaves could produce alcohol production. Then bioenzyme sample reacted with mercuric acetate and perchloric acid to produce megenta colour due to formation of alkoxy mercury intermediates (active compound.4) and breakdown of unsaturated double bonds in parijat leaves.

This sample was suitable for cold restraint stress induced limbic pain.

Procedure for Identification of Emulsifying Property:

Corolla of *Nyctanthes arbor-tristis* was infused in oil for one night. Then it is heated for hour in water bath and filtered, observing light greenish colour.

25 ml of water and 25 ml oil were separated by separating funnel for 5 minutes. Separated oil was mixed with 1 ml soap solution and emulsifying property was identified and helpful in treatment for relieve pain at joints, bones and cartilages.

DAY:37 (IMAGE NO : 9)

Sample	Foaming Property	Consistency	ODOUR	BACPD
FAAB I	Increases	Decreases	Pungent	Formed
FAAB II	Increases	Decreases	Pungent	Formed
FAAB III	Increases	Decreases	Pungent	Formed
FAAB IV	Decreases	Decreases	Pungent	Not Formed

SUMMARY AND CONCLUSION:

Limbic pain is associated with behavioural responses in mapping with emotional response.

Flavonoid -aryl substituted benzopyran (active compound -1) presented in orange red colour oil sampling, 4' deoxy-7-O-Glucose Hesperidin (active compound.2) presented at bio-enzyme sample, methyl Arbortristoside A (active compound.3) presented at yellow colour oil sampling and alkoxy mercury intermediates (active compound.4) presented at bioenzyme sampling.

These four active compound -1 & 3 from oil and 2& 3 from bio-enzyme were involved in emotional processing and regulation, memory storage and controlling arousal as well as utilise these compounds in dysfunctional limbic system.

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