



KUCHLA A TREMENDOUS DRUG FOR PAIN MANAGEMENT- A RESEARCH ARTICLE

Dr. Tejbir Singh^{*1}, Dr. Yogesh Bansal², Dr. Shridhar Aggarwal³, Dr. Minaxi Arora⁴ and Dr. Bal Krishan Sharma Kaushik⁵

¹(Professor & Hod Dept. Of Dravya Guna) Guru Nanak Ayurvedic MEDICAL College & Research Institute, Gopalpur, Ludhiana.

²(MD, PhD Scholar, Assistant professor Dept. Of Agad tantra) Guru Nanak Ayurvedic MEDICAL College & Research Institute, Gopalpur Ludhiana.

³BAMS and Director, Dr. Aggarwal's Ayurvedic Panchkarma and Research Centre, Mohali

⁴MD, PhD(Ayu) Principal & Professor, Shree Lakshmi Narayan Ayurvedic College, Amritsar.

⁵MD, PhD Dravya Guna Professor & Former Professor & H.O.D Dravya Guna Dept., Govt. Ayurvedic College, Patiala.

***Corresponding Author: Dr. Tejbir Singh**

(Professor & Hod Dept. of Dravya Guna) Guru Nanak Ayurvedic MEDICAL College & Research Institute, Gopalpur, Ludhiana.

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ABSTRACT

Kuchla is an evergreen plant and the mainly used part of this plant are its seeds. It has a pungent smell and a bitter taste. Kuchla might be beneficial in improving appetite by increasing intestinal motility as well as gastrointestinal functions and also help prevent constipation. It might be good for diabetics due to the presence of certain constituents that help lower blood glucose levels. Kuchla also helps to supervise insomnia by envious the functions of the brain and reducing stress. It is also beneficial in managing urinary problems like burning sensation or irritation during urination due to its diuretic activity. According to Ayurveda, the administration of Kuchla is optional only after its purification (shodhana) in different media like cow's urine (Gomutra), cow's milk (Go dugdha) or cow's ghee (Go ghrita). The final purified product is known as Sudha Kuchla. Sudha Kuchla helps to manage sexual problems like erectile dysfunction due to its Vajikarna (aphrodisiac) property. Kuchla oil can be applied on the joints to provide relief from inflammation and pain associated with rheumatism due to its anti-inflammatory property which indirectly decreases the pain. Hence an attempt has made to collect all information for the same.

KEYWORDS: Relief, HPLC, decrease, activity.

INTRODUCTION

Pain can be described as any physical or mental suffering or discomfort caused by illness or injury. No matter however mild the pain is anywhere in the body it lands person in state of discomfort and affects day to day activities. Pain can present in various ways as throbbing pain in toothache, colic pain which comes in spasm as in renal calculi, muscular pain as in sprain, sport injury and joint pain due to inflammatory condition and many more. In today's era musculoskeletal and neuromuscular pain like pain of arthritis, sciatica, lumber spondylosis, migraine, etc are very common. Pain is also categorized as acute or chronic on the basis of duration. Our answer to pain is a pain-killer, which on frequent uses kills our resistance power. Ayurveda explains the origin of pain due to vitiated Vata dosha and once Vata dosha is treated efficiently, the pain subsides automatically. Many people have a false belief that Ayurveda is not good in curing

acute pain and Ayurvedic medicines should only be consumed in chronic pain and it always give very slow result but the thing is they are unaware of the wonderful management of pain with Ayurveda using the drug so called kuchala. Specific *Shodhana* (purification) procedures have been adopted for the purification of nux vomica seeds and these methods are either mentioned in the classics of Ayurveda or practiced traditionally.^[1-2] The concept of *Shodhana* (purification) in Ayurveda is not only a process of purification / detoxification, but also a process to enhance the potency and efficacy of the drug.^[3] For instance it is reported that aconite (*Vatsanabha*) purified by cow's urine is converted to a cardiac stimulant, whereas, raw aconite is a cardiac depressant.^[4] Purified *Kupeelu* is also claimed to be a potent drug in countering old age problems and specially recommended during senility as a *Rasayana* (antioxidant).^[5] Different techniques.^[6] have been used

for the analysis and quantification of strychnine and brucine in raw and processed seeds. Few reports are also present, which explore various methods of purification of nux vomica seeds as per Ayurveda.^[7] systems of medicine. In the present study after purification kuchala were extracted and main content which acts as pain reliever were analysed. pain assessment will be done using pain Assessment in Clinical Trials (IMMPACT) to provide recommendations for interpreting clinical importance of treatment outcomes in clinical trials of the efficacy and effectiveness of chronic pain treatments. A group of 30 participants from professors of universities, governmental agencies, a patient self-help organization, and the pharmaceutical industry considered methodological issues and research results relevant to determining the clinical importance of changes in the specific outcome measures previously recommended by IMMPACT for 4 core chronic pain outcome domains:

- (1) Pain intensity, assessed by a 0 to 10 numerical rating scale;
- (2) Physical functioning, assessed by the Multidimensional Pain Inventory and Brief Pain Inventory interference scales;
- (3) Emotional functioning, assessed by the Beck Depression Inventory and Profile of Mood States.
- (4) Participant ratings of overall improvement, assessed by the Patient Global Impression of Change scale. It is recommended that 2 or more different methods be used to evaluate the clinical importance of improvement or worsening for chronic pain clinical trial outcome measures. Provisional benchmarks for identifying clinically important changes in specific outcome measures that can be used for outcome studies of treatments for chronic pain are proposed.

MATERIALS AND METHODS

100gm of Kuchala were borrowed from pharma company and it is to washed pet dry and put on bloating paper for 5 minutes. There are several specific *Śodhana* procedures, which have been adopted to purify the toxic materials from the seeds of *Kupīlu*.^[8] Classical method of purification includes soaking of *Kupīlu* seeds in liquid media (one after another) for 3–20 days. The liquid media include *kāñji* (soaking for 3 days), *Godugdha* (boiling for 3 h), *Gomūtra* (7 days soaking) and *Goghṛta* (fried till brownish red in color and swollen)^[9] whereas traditional practitioners use castor oil (*Eraṇḍa taila*) instead of grita to fry^[10] or immerse the seeds in the exudates scraped from the fresh leaves and stems of *Aloe vera* (*ghṛtakumārī*) for 15 days, followed by ginger juice (*Ārdraka svarasa*) for 7 days^[11] for purification. In the present study we followed the the kuchala sodhana with godugdha.

After *Śodhana* process, the seeds are washed with lukewarm water where the outer seed coat and embryo are removed from the cotyledon.

RESULTS

Various analytical values of *S. nux-vomica extract* were established. Pharmacognostical characters were performed as per the WHO guideline. Extraction was carried out in petroleum ether, chloroform, alcohol, hydroalcoholic, aqueous, and phytochemical constituents present in extracts were detected by different chemical tests. Among these extracts hydroalcoholic, aqueous extracts were evaluated for pain relieving activity on the basis of extractive yield and phytoconstituents. Detoxification of *Kupīlu* might be due to the chemical changes that causes the enhance N-oxidation and conversion of strychnine and brucine into less toxic derivatives such as isostrychnine, isobrucine, strychnine N-oxide, brucine N-oxide, and reduced level of loganic acid content of the seeds. These chemical constituents were analysed by HPTLC later on too. strychnine and brucine were found which are beneficial for pain management as told by Sharma K.C. et al. *Strychnos nux vomica*, responsible for its pharmacologic and toxic effects. Total alkaloids account for 2.6-3.0 % out of which 1.25-1.5 % Strychnine and 1.7 % Brucine are the main alkaloids apart from others viz. Vamicine, Colubrine, Pseudo-strychnine, Navacine, Icajine etc

Godugdha purified seeds Sample A	Strychnine 0.46 %	Brucine 0.345 %
SAMPLE B	0.29%	0.21%
SAMPLE C	0.31%	0.12%

DISCUSSION

Strychnos nux-vomica, commonly known as *kuchla*, contains strychnine and brucine as main constituents. Minor alkaloids present in the seeds are protostrychnine, vomicine, *n*-oxystrychnine, pseudostrychnine, isostrychnine, chlorogenic acid, and a glycoside. Seeds are used traditionally to treat THE Pain specially in OA. Medicinal plants have been widely claimed useful and found effective in the treatment of diabetes mellitus in various traditional systems of medicine. Various species of *Strychnos* have been reported traditionally for its use in pain management kupilu or kuchala is purified in godugdha as its alone act as a antidote and balya so it help in enhancing the property of kuchla as Role of Media Studies has confirmed the presence of alkaloids in milk used for Kupilu Shodhana signifying the importance of role of media in the same.¹⁸ Media has a role in either breaking down or destroying the chemical constituents that are not required. Heat treatment or constant boiling of a drug in a particular media for a specific period of time has a role in modification of the chemical constituents. Hence after following the proper method we got the good extract and which is proved to be best pain management therapy by the other researcher too.

Strychnine Toxicity (Ld50 Values)

Animal Body Weight (mg/kg) Rabbit 0.6 Dog 1 Rat 5 Pigeon 21 Possum 30 Human 1-30 Note: LD50 values represent lethal dose for 50% of the population.

If We See the Poisoning of Strychnine: C₂₁H₂₂N₂O₂ this violently poisonous alkaloid is crystalline, slightly soluble in cold water (1 part in 6700 U. S. P.), the solution being alkaline and bitter. It dissolves in 7 parts of chloroform and 150 parts of 90% alcohol. Strychnine is a terrible tetanic poison, affecting the cerebrospinal system, but it kills without producing marked anatomical change, the muscles and nerves being scarcely altered, although the brain and spinal cord may be congested, stomach and limbs intensely congested, right side of heart gorged (sometimes empty), and the lungs congested, The fatal dose of Strychnine is as low as 4 grain. Indeed, it is recorded that a grain killed a two-year old child in four hours, while 8 grain killed a man in twenty minutes.^[12]

Brucine: This related alkaloid is also a product of chemical action on Nux Vomica. It is known to chemists as dimethoxyl strychnine C₂₃H₂₆N₂O₄. Brucine is very bitter, freely soluble in cold alcohol, soluble (U. S. P.) in 850 parts of cold water.^[13] It differs in reaction from Strychnine in that strong sulphuric or nitric acid strikes with it a blood-red colour, whereas with Strychnine no coloration appears. If to a hydrochloric acid solution of Brucine and Strychnine, potassium ferrocyanide solution be added, the Brucine precipitates, while the Strychnine remains dissolved, The mixed alkaloids can be quite closely separated by alcohol 0.97 sp. g., which freely dissolves Brucine, but scarcely dissolves Strychnine, Brucine is a poison which has the physiological qualities of Strychnine, but in a markedly less degree. Authorities differ, some considering it onesixteenth, others from one-fortieth to one-fiftieth less energetic than Strychnine as a convulsant. It is absorbed much slower, and although more energetic as concerns the sensory nerves, is decidedly less dangerous than Strychnine. The antidotes and treatment for poisoning by Brucine are the same as for Strychnine.^[14]

Medicinal Value of Strychnine and Brucine

After Purification Of These Seeds These Have Pahraceutical Actions like pain management of case of Osteoarthritis, Atonic; anti-diarrhoeal; anti-dysenteric, antispasmodic, emetic, febrifuge, stimulant and tonic; used in cholera; diabetes; emotional disorders, hysteria; epilepsy; intermittent fevers; gout, rheumatism, hydrophobia; impotence; insomnia; paralytic and neuralgic afflictions; prolapsed rectum; antidote to alcoholism; beneficial in general exhaustion; opium poisoning; retention or nocturnal incontinence of urine; spermatorrhoea; given in combination with carminatives and antacids in dyspepsia and vomiting.^[15] Nux-vomica seeds produce a sort of intoxication, for which they are habitually taken by some natives as an aphrodisiac by cutting down into small pieces and chewed with a packet

of betel leaf. The seeds also yield oil, and a dye; the dye gives a brown colour to cotton fabrics. Oil, obtained by heating the fresh seeds, is used externally in rheumatism.

Shudha Kupilu seeds are generally used in a dose of 60-250 mg in Pain management.

CONCLUSION

Kuchala after proper media selection may lead to good extraction constituents and can act best as pain management drug. Pain management scale as told above can be taken for the further studies like pre clinical trials and clinical trials.

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