IJPSR (2015), Vol. 6, Issue 1 **(Research Article)**

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 01 May, 2014; received in revised form, 16 July, 2014; accepted, 20 September, 2014; published 01 January, 2015

ANTI NOCICEPTIVE ACTIVITY OF *ARGENTUM NITRICUM, STAPHYSAGRIA, IGNATIA AMARA* IN MICE IN COMPARISON WITH ACETYL SALICYLIC ACID (ASPIRIN)

Humera Anser [*1] and Rahila Najam [2]

Department of Pharmacology [1], Jinnah University for Women, Karachi, Pakistan.
Department of Pharmacology [2], University of Karachi, Karachi, Pakistan.

Keywords:

Argentum Nitricum, Staphysagria, Ignatia Amara, Nociception

Correspondence to Author:

Humera Anser

Assistant Professor,
Department of Pharmacology,
Faculty of Pharmacy,
Jinnah University For Women.
Karachi, Pakistan.

E-mail: humera124@gmail.com

ABSTRACT: Pain is a condition that is experienced by everybody in its life irrespective of humans or animals, reason could be due to any intense stimuli. It is a common phenomenon in vertebral animals similar to that felt by humans. This study was designed to determine the analgesic activity of *Argentum Nitricum, Staphysagria* and *Ignatia Amara* in comparison with Acetyl salicylic acid. For this purpose the method of Eddy and Leimbach using heated plate analgesic apparatus was used. Administration of water to the control, standard drug and test homeopathic remedies to animals by oral route and the reaction time of animals were noted at 30, 60, 90, 120, 150 and 180 min interval on the hot plate. In the conclusion the study proved that the *argentum nitricum* possess highly significant ($p \leq 0.001$) analgesic activity among all test remedies and is more potent than the reference drug i.e. acetyl salicylic acid.

INTRODUCTION: Everybody in his/her life experiences pain, reason could be due to any intense stimuli. It is a common phenomenon in vertebral animals similar to that felt by humans. It is an alarming signal of many disease states[1]. Pain is an unpleasant feeling that results due to stimulation of nociceptors. The sensory receptors transmit the sensory information to the dorsal horn of spinal cord via afferent fibers of different diameters for example Aδ fiber and C fibers. Pain senses are sent to thalamus via Aδ fiber and beyond the spinothalamic tract i.e. cerebral cortex. Pain could be physiological, neuropathic, dysfunctional or due to inflammatory response.

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.6(1).147-53

Article can be accessed online on: www.ijpsr.com

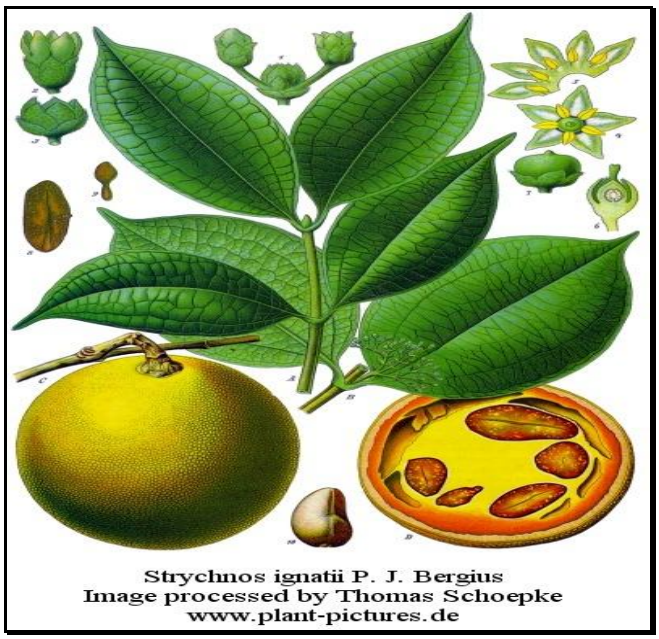
DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.6(1).147-53

Ideally the treatment should be targeted at specific mechanisms rather than suppressing the pain symptoms. A large number of therapeutic agents are available that relieves the pain [2]. Among them opioidal analgesics and NSAIDs are of importance but have various adverse effects. They are used as tools in determination of analgesia and inflammation.

The aim of this study was to discover the analgesic effects of drugs of alternative medicines with less severe adverse effects as compare to NSAIDs / opioidal drugs. Homeopathy is a system of alternative medicine which is considered as a pseudoscience [3]. This system includes treatments that targets the underlie causes of diseases. This system uses minimal concentration of substances that is still capable of producing effect with no adverse effect [4]. Homeopathic medicines stimulate the internal environment of body cells to cure disease itself [5].

Staphysagria is remedy that is extracted from plant source *Delphinium Staphysagria*, which is the specie of delphinium (larkspur) of Renunculaceae family. This plant was also known as Lice –Bane or Staversacre. Maud Grieve (1931) [6] refers this as being vermifuge, a violent emetic, and cathartic. Main constituents are alkaloidal in nature and include Delphinine (an irritant poison), Delphisine, Delphinoidine, staphysagroine, Staphysagrine. Delphinine used both internally and externally for neuralgia. It also has strychnine induced convulsion reversal ability by decreasing the spinal cord excitation. It is capable of causing spinal cord paralysis as well as death due to asphyxia Staphysagrine paralyses the motor nerves like curare [6.]

PLANT OF *DELPHINIUM STAPHYSAGRIA*.



PLANT OF *STRYCHNOS IGNATII*.

Another remedy *Ignatia amara* made from plant, Botanical name is *Strychnos Ignatii*. It belongs to the family N.O. Loganiaceae. Faba Ignatic and *Ignatia amara* (Linn) are its synonym. Its habitat is in Philippine island. The main constituents contain strychnine in high content as compare to *Nux vomica*, Brucine, a fixed oil, a gum resin and bassorin [6]. It is used as a tonic and stimulant. This plant is a source of homeopathic remedy *Ignatia amara*. This remedy is used in the treatment of anxiety related problem.

Another remedy *Argentum Nitricum*, the source is mineral i.e. silver nitrate ($AgNO_3$). It is indicated in conditions like vertigo with trembling, apprehensions, neuralgic pain that ends up in vomiting. The type of pain could be prosoplagia (trigeminal pain), gastralgia (abdominal pain) or chest pain due to angina pectoris. It is also used in the treatment of epilepsy. It is the best remedy in hemicranias[7].

Research methodology:

For analgesic activity adult albino mice of either sexes, weighing 25-30 g were used. The animals were housed two animals in one cage in a room maintained at 25 ± 2 ^{o}C, relative humidity 55-65%and were maintained under a 12 hours light / dark cycle i.e. light on from 08.00 am to 08.00 pm in the animal house of the Department of Pharmacology, University of Karachi. The animals were given standard diet and had free access to clean and purified drinking water but the animals were deprived of food overnight, before the experiment. 10 animals were used in each group.

Animals were handled as per specification provided in Helsinki Resolution 1964 and the study was approved by our Board of Advanced Studies and Research vide Resolution No 10(50).dated: 25-10-2011, 11-11-2011 and 25-11-2011.

Analgesic activity:

Heat is used as a source of pain. Animals were placed individually on the hot plate maintain at constant temperature (52±2°C) [8] and the animal

response, such as paw licking or jump response was taken as the end response. Analgesic drugs/compounds increases the reaction time. The method was first described by Eddy & Leimbach[9] (A cut off period of 15 sec is observed to avoid damage to the paw) [9, 10]. The hot plate test has been found to be suitable for evaluation of centrally acting analgesics [11]. The thermal model of the tail flick test is considered to be spinal reflex, but could also involve higher neural structures as this method identifies mainly central analgesic [12].

Administration of the control, standard drug and test drugs to animals was through oral route and the reaction time of animals were noted at 30, 60, 90, 120, 150 and 180 min interval on the hot plate after drug administration. The method of Eddy and Leimbach using heated plate analgesic apparatus was used. Acetyl salicylic acid (300mg) was used as standard reference drug for comparison.

The dose of acetyl salicylic acid was calculated on the basis of body weight of the animals, 300 mg was an adult dose. Animals (mice) were maintained under environmentally controlled conditions in five groups (n=10) of each animals. Group one served as control(distilled water only), second group was given standard reference drug (Acetyl salicylic acid)(positive control),while third, fourth and fifth group were given *Argentum nitricum, Staphysagria* and *Ignatia amara* 0.1 ml of diluted 30 C potency respectively.

Dose calculation:

2 drops of 30C potency in 30 ml then take 1tsp out of this dilution, is an adult dose.

For 25gm mice the dose will be =30/70 x 0.025=0.01ml or 10 micro liter.

Determination of analgesic activity using Eddy's Hot plate apparatus:

Pain reflexes were measured, the apparatus used was Hot plate analgesimeter UGO Basile instrument no 7280**.** The pain response time were measured after 30 minutes of drug administration. For analgesic activity the cut off time was 20 second to avoid any damage [13]. The pain response can be in the form of licking of hind paw, flipping of hind paw or jumping of animal out from that enclosed arena [14].

Remedies:

We selected *Argentum Nitricum, Staphysagria, Ignatia Ammara* of 30 C potency. The potency selected upon literature survey which has proved that these remedies range from 30-200 C potency had shown effects in treatment of purulent ophthalmia, in acute conjunctivitis, and in ulcerated cornea, gastric ulcer [15,16] and as well as in neuralgic pain, and in hemicranias [7].

Statistical analysis:

All the data is presented as Mean ± S.D. (n=10). Statistical analysis was performed using One Way Analysis Of Variance(ANOVA) followed by post hoc test Multiple comparisons. All the analysis were performed using Social Sciences version 20 (SPSS, Inc., Chicago, IL, USA).

RESULTS:

A one-way ANOVA was conducted to determine the analgesic activity and compare these homeopathic medicines with control. *Argentum Nitricum, Staphysagria, Ignatia amara* were compared with Control after zero min, 30 min, 60 min, 90 min, 120 min, 150 min and after 180 minutes respectively which showed significant results as compared to controls.

Argentum Nitricum at 30 min, 60 min, 150 and 180 min showed highly significant results(maximum latency to lick the paw was 29.024±1.585 at 52º C) when compared with controls(maximum latency to lick the paw was 18.075±6.09 at 52º C) ($p \leq 0.001$). *Argentum Nitricum* at 120 min showed moderately significant results (maximum latency to lick the paw was 22.23±5.47 at 52º C) as compared to control (maximum latency to lick the paw was 14.19±6.30 at 52º C) ($p \leq 0.01$). The effect of *Argentum Nitricum* was insignificant at 90 min (maximum latency to lick the paw was 17.9135±8.20 at 52º C) as compared to control (maximum latency to lick the paw was 14.19±6.30 at 52º C).

Staphysagria at 60 min, 120 min showed moderately significant results (maximum latency to lick the paw was 22.198±7.716 at 52º C) when compared with controls (maximum latency to lick the paw was 14.19±6.30 at 52º C). While at 150 and 180 min showed significant results (maximum latency to lick the paw was 17.586±6.062 at 52º C)

when compared with control (maximum latency to lick the paw was 11.467±4.237 at 52º C). *Staphysagria* showed insignificant results at 30 and 90 min (maximum latency to lick the paw was 20.771±2.753 at 52º C) when compared with control (maximum latency to lick the paw was 17.9135±8.20 at 52º C).

TABLE 1. ANALGESIC ACTIVITY OF *ARGENTUM NITRICUM, STAPHYSAGRIA, IGNATIA AMARA* AND ACETYL SALICYLIC ACID IN COMPARISON WITH CONTROL

Drugs	Dose	Pre drug 0 min	After drugs administration Mean increase in latency(sec)					
			30 min	60min	90min	120min	150min	180min
Control	0.1ml (NS)	9.355±3.462	7.258±1.116	7.1125±1.392	17.9135±8.204	14.1957±6.306	18.075±6.09	11.467±4.237
Argentum Nitricum	30C (Diluted in water) 0.1 ml	10.059±1.69	10.915±1.393 (p=0.001)***	20.693±2.518 (p≤0.001)***	21.335±3.728 (IS)	22.23±5.47 (p≤0.01)**	29.024±1.585 (p≤0.001)***	21.853±5.565 (p≤0.001)***
Staphysagria	30C (Diluted in water) 0.1 ml	9.162±1.508	9.339±1.132 (IS)	13.355±5.113 (p≤0.01)**	20.771±2.753 (IS)	22.198±7.716 (p≤0.01)**	14.331±2.588 (p≤0.05)*	17.586±6.062 (p≤0.05)*
Ignatia Ammara	30C (Diluted in water) 0.1 ml	8.726±3.947	8.548±3.989 (IS)	15.506±4.835 (p≤0.001)***	13.583±6.237 (IS)	16.488±9.006 (IS)	11.942±3.986 (p≤0.001)***	13.643±10.528 (p≤0.001)***
Aspirin	300 mg	10.648±3.991	14.94±2.964 (p<0.001)***	20.394±8.466 (p≤0.001)***	16.156±3.948 (IS)	14.576±3.254 (IS)	14.261±2.713 (p≤0.001)***	13.331±1.902 (p≤0.05)*

n=10, df=4

Values are mentioned in terms of mean ± Standard Deviation using one way ANOVA. *p* values are calculated from the Comparison of control versus test and standard drugs (*Argentum Nitricum, Staphysagria, Ignatia Ammara,* Acetyl Salicylic acid)

*p≤0.05 significant, **p≤0.01 moderately significant, ***p≤0.001 highly significant, IS = Insignificant.

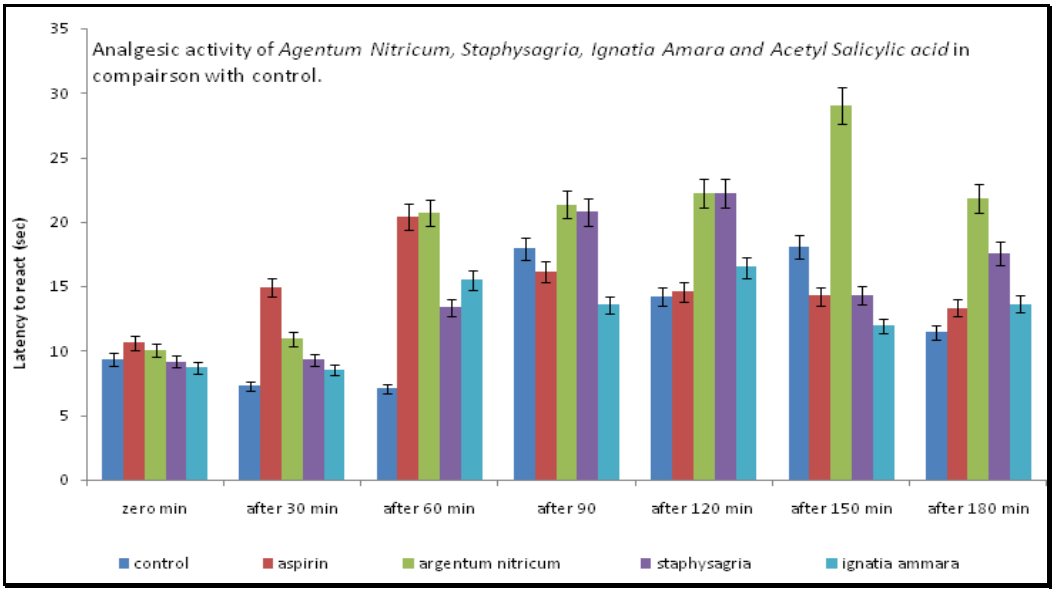
TABLE 2. ANALGESIC ACTIVITY OF *ARGENTUM NITRICUM, STAPHYSAGRIA, IGNATIA AMARA* IN COMPARISON WITH STANDARD (ACETYL SALICYLIC ACID)

Drugs	Dose	Pre drug 0 min	After drugs administration Mean increase in latency(sec)					
			30 min	60min	90min	120min	150min	180min
Control	0.1ml (NS)	9.35±3.46	7.25±1.11	7.11±1.39	17.91±8.20	14.19±6.30	18.07±6.09	11.46±4.23
Argentum Nitricum	30C (Diluted in water) 0.1 ml	10.06±1.69	10.91±1.39 (p=0.001) ###	20.69±2.51 (IS)	21.33±3.72 (p<0.05) #	22.23±5.47 (p≤0.01) ##	29.02±1.58 (p≤0.001) ###	21.85±5.56 (p≤0.01) ##
Staphysagria	30C (Diluted in water) 0.1 ml	9.16±1.50	9.34±1.132 (IS)	13.35±5.11 (p≤0.01) ##	20.77±2.75 (IS)	22.19±7.71 (p≤0.01) ##	14.33±2.58 (IS)	17.58±6.06 (IS)
Ignatia Ammara	30C (Diluted in water) 0.1 ml	8.72±3.94	8.54±3.98 (p<0.001) ###	15.50±4.83 (p≤0.05) #	13.58±6.23 (IS)	16.48±9.00 (IS)	11.94±3.98 (IS)	13.64±10.52 (IS)
Aspirin	300 mg	10.648±3.991	14.94±2.964 (p<0.001)###	20.394±8.466 (p≤0.001)###	16.156±3.948 (IS)	14.576±3.254 (IS)	14.261±2.713 (p≤0.05)#	13.331±1.902 (IS)

n=10 df=4

Values are mentioned in terms of mean ± Standard Deviation using one way ANOVA .*p* values are calculated from the comparison of control versus test and standard drugs (*Argentum nitricum, Staphysagria, Ignatia Ammara,* Acetyl Salicylic acid)

#p≤0.05 significant, ##p≤0.01 moderately significant, ###p≤0.001 highly significant, IS = Insignificant



GRAPH 1.

Ignatia Amara at 60 min, 150 min and 180 min showed highly significant results ($p \leq 0.001$) (maximum latency to lick the paw was 15.506±4.835 at 52º C) as compared to control(maximum latency to lick the paw was 7.1125±1.392 at 52º C). It showed insignificant results at 30, 90 and120 min (maximum latency to lick the paw was 16.488±9.006 at 52º C) as compared to control (maximum latency to lick the paw was 14.195±6.09 at 52º C).

Post Hoc Analysis by multiple comparison test showed that reaction time was increased significantly by *Argentum Nitricum* after 30 min and 150 min, reaction time was moderately increased after 120 min and 180 min, while after 90 min the reaction time was increased significantly as compared to Acetyl salicylic acid.

Post Hoc Analysis by multiple comparison test showed that reaction time was increased moderately significantly by *Staphysagria* after 60 min and reaction time was moderately increased after 120 min as compared to the standard drug Acetyl salicylic acid.

Post Hoc Analysis by multiple comparison test showed that reaction time was increased highly significantly by *Ignatia Amara* after 30 min and significantly increased after 60 min whereas after 90 min, 120, 150, 180 min the results were insignificant as compared to the standard drug Acetyl salicylic acid.

DISCUSSION: Pain is a debilitating and unpleasant sensory feeling that is associated with tissue damage. As per definition pain is an unwanted subjective, physical, psychological experience which results due to stimulation of sensory afferent nerve fibers either Aδ fiber and C fibers that are related to pain pathways to brain through spinal cord [17].

The hot-plate test was performed, it is preferred test because of several advantages, mainly due to the sensitivity to strong analgesics and it causes partial tissue injury and due to its reliability and validity of test has been shown even in the presence of significant impairment of motor performance. The drugs may inhibit the sensitization of nociceptors and /or inhibition of central pain receptors [18, 10]. Also, this test indicates involvement of opioidal receptors [19].

The hot plate method involves thermal nociceptors stimulation also, specific nociceptors involved in thermal pain perception are thermo sensitive non selective cationic channel specifically Transient receptor potential vanilloid receptor 1 (TRPV1) and Transient receptor potential vanilloid receptor protein 1 (TRPV2) [20, 21]).

TRPV1are expressed in high threshold peripheral neurons and activated at temperature excess of 42 ºC. While TRPV2 receptors are activated at temperature above 50 ºC [22]. It has been reported in literature by [23] that opioidal drugs have both central

and peripheral pain blocking mechanism while NSAIDs block only peripheral pain mechanism. It is well established that thermal nociceptive test are more sensitive to μ opioidal agonist or central analgesics, so according to our data it is suggestive that here μ opioidal receptors are activated and producing analgesic effect[24] .

The neurotransmitter involved in pain mainly is glutamate while co transmitters involved are substance P, CGRP, BDNF etc. Other neurotransmitters Nor epinephrine, serotonin, dopamine, glycine, GABA, opioidal peptides released from inhibitory neurons are involved in pain inhibition.

The present study indicates that test medicines may be centrally acting. Homeopathic remedies produce significant anti nociceptive effect which may be due to blockade or release of endogenous substances that stimulate pain in nerve endings similar to paracetamol and other NSAIDs[25]. The similar remedy, by actually increasing the disease spontaneously provokes the patient's vital force into action to discover the causative factors of the sickness and eradicate them. The purpose of the remedy appeared to stop at this spontaneous, stimulating point. The patient's own vital force takes over then and it treats and cures the patient.

The signs and symptoms apparently are not the disease; neither are they simply the manifestation of the disease but of the continuing fight between the body's defenses and the disease forces [26]

Acetyl salicylic acid has been used for the treatment of moderate pain. Acetyl salicylic acid and its metabolites decreases and inhibit the postoperative hyperalgesia mainly through inhibition of COX enzyme in the spinal cord and in the periphery also [27] with a series of complex actions[28] . As per our results it is shown that all of the three test medicines have promising anti nociceptive activity and have shown efficacy in pain treatment. However both central and peripheral analgesic mechanisms had been postulated. Still a thirst left for further studies to be done in order to determine mode and site of action at molecular level for better understanding of exact mechanism.

CONCLUSION: In the conclusion the data of current study showed that *Argentum Nitricum* posses a marked analgesic activity among all three test medicines as well as the standard reference drug i.e. Acetyl salicylic acid i.e. the reaction time to pain in *Argentum Nitricum* administered mice was longer than the reaction time in mice given Acetyl salicylic acid. Next to *Argentum nitricum, Staphysagria* also showed analgesic activity but less in efficacy than *Argentum Nitricum. Ignatia Aamara* stands last in the queue according to its analgesic activity.

These medicines although not indicated or used as analgesics have potential to be used as potent analgesics and this effect requires further studies *in- vitro* as well as *in -vivo.*

REFERENCES:

1. Hans Gerhard vogel. Drug discovery and evaluation: pharmacological assays"3rd edition. NY 2008. Springer-verlagberlin Heiddberg. ISBN:978-3-54070995-4
2. Robert S. Griffin and Clifford J Woolf. Pharmacology of analgesia. In: Principles of pharmacology the pathophysiologic basis of drug therapy. 3rd edition. 2012. Page no.266. Lippincott Williams and Wilkins, Philadelphia.USA. ISBN-13:978-1-60831-270-2.
3. Raimo Tuolema Science, Protoscience, and Pseudoscience. Joseph C. Pitt, Marcello Pera (ED). Rational Changes in Science. Part I , pp 83-101, 1987.DOI 10.1007/978-94-009-3779-6_4 Print ISBN 978-94-010-8181-8
4. Hahnemann S (1833/1921), The Organon of the Healing Art (5th ed.), aphorism 269, ISBN 0-87983-228-2.Hahnemann S (1842), The Organon of the Healing Art (6th Ed.) (published 1921), aphorism 270, ISBN 0-87983-228-2
5. Dr Davendra Kumar Munta. The modus operandi of Differentiating Homeopathic Medicines by Measuring physiological variability in Human Body temperature - "Research work Ready for open Challenge".2012 http://homeoresearch.blogspot.com/2012/11/the-modus-operandi-of-differentiating_2374.html
6. Maud Grieve. A modern Herbal.1931; Retrieved from http://www.botanical.com/botanical/mgmh/s/stavas90.html
7. Farrington (n.d.).Homeopathic *Materia Medica* by Farrington. International academy of classical homeopathy. Retrieved from http://www.vithoulkas.com/en/books-study/onlinemateria-medica/2365.html.
8. Abhishek Tiwari, Anita Singh. Synthesis and antinociceptive activity of novel mannich base derivatives of some new fused 3, 5-pyrazolidinedione. Journal of advanced pharmaceutical technology and research.2014;5(1):41-47
9. Eddy NB, Leimboeck D. Synthetic analgesic: IIdiethylenylbutennylamines and diethylenylbutylamines. Journal of Pharmacology and Experimental Therapeutics, 3, 1953, 544–547.
10. Williamson EM, Okpako DT, Evans FJ. Pharmacological Methods in Phytotherapy Research. Selection, Preparation

and Pharmacological Evaluation of Plant Materials. John Wiley, Chichester, 1996; 184–186.
11. Ojewole JAO.Analgesic anti inflammatory and hypo glycaemic effects of Ethanol extracts of *Zingiber officinale* (Roscoe) Rhizomes (Zingiberaceae) in Mice and Rats, Phytother. Res. 2006: 764-772.
12. Jensen TS, Yaksh TL. Comparison of antinociceptive action of morphine in the periaqueductal gray, medial, and paramedial medulla in rat. Brain Res. 1986; 363:99-l 13.
13. Vijay P, Vijayvergia R. Analgesic, anti-inflammatory and antipyretic activity of *Cissus quadrangularis*. J Pharmaceut Sci Technol .2010; 2: 111–118.
14. Bannon AW, Malmberg AB. Models of nociception: hot-plate, tail-flick and formalin tests in rodents. Curr Protoc Neuroscience.2007; Chapter 8: Unit 8.9.
15. Rawat P.S. A homeopathic treatise on homeopathic help, research and allied work-part III. Hpathy Ezine, February, 2011. Retrieved from http://hpathy.com/materia-medica/a-homoeopathic-treatise-on-homoeopathic-help-research-and-allied-work-part-3/
16. Dr. Robert ullman and Dr.Judyth Reichenberg-ullman. Homeopathic potency selection simplified.2012. Retrieved from http://healthyhomeopathy.com/articles/ homeopathic-potency-selection-simplified/
17. Palecek J and Willis WD. Response of neurons in the rat ventricular posterior thalamic nucleus to noxious visceral and cutaneous stimuli, Thalamus Related systems, 2005; 3(1) 25.
18. Koster R, Anderson M, De-Beer EJ. Acetic acid for analgesic screening. Federation Proceedings: 1959; 18, 412–418.
19. Turner RA. Screening Methods in Pharmacology. Academic Press, New York, 1995, 85–106.
20. Robert S. Griffin and Clifford J. Woolf. Pharmacology of analgesia. In: Principles of pharmacology the pathophysiologic basis of drug therapy.3rd edition. 2012. Lipponcott Williams and Willkins, ISBN-13:978-1-60831-270-2.
21. Pata Poutian A, Tate S, Woolf CJ. Targeting pain at the source. Nat. Rev Drug Discov.2009; 8:55-68(Review of the status of TRP Channels at analgesics target).
22. Kathryn Bayne. Assessing pain and distress." A veterinary behaviorist perceptive by Kathryn Bayne." Defination of pain and distress and reporting requirement for laboratory animals.2007; (Proceedings of work shop held on 2000).
23. Pranit KP, Pawar Jayashree C, Chaaudri Sanay R. Central nervous system activity of different extracts of Leucas longifolia Benth. Asian Journal of Pharmaceutical and clinical Research.2010; 3(4):48-52.
24. Garcia M.D., Fernandez M.A., Alverez A., Saenz M.T. Anti nociceptive and anti inflammatory effect of aqueous extract from leaves of *Pimenta racemosa* Var. ozua (Mirtaceae). J.Ethanopharmacol.2004; 91, 69-73.
25. Rajagoundan Rajavell, Thangavel Sivakumar, Murugesan Jagadeeswaran and Perumal Malliga. Evaluation of analgesic and anti-inflammatory activities of *Oscillatoria willei* in experimental animal models. Journal of Medicinal Plants Research Vol. 2009;3(7), pp. 533-537, 2009 ISSN 1996-0875 2009; Academic Journals
26. Cynthia Young, Harikesh ganga .Essential *materia medica* (esmame). Fifth edition.2012.
27. Vane JR, Botting RM. New insight into mode of action of anti inflammatory drugs. Inflamm Res.1995;44:1-10
28. Jackson-Robert L, II, Morrow JD. Analgesic-Antipyretic and Anti-inflammatory agents and drugs employed in the treatment of gout. In: Hardman JG, Limbird LE, Gilman AG, editors. Goodman and Gilman's The Pharmacological Basis of Therapeutics. 10th edition. New York: McGraw-Hill Medical Publishing Division; 2001. pp. 687–732.

How to cite this article:
Anser H and Najam R: Anti Nociceptive Activity of *Argentum Nitricum, Staphysagria, Ignatia Amara* in Mice in Comparison With Acetyl Salicylic Acid (Aspirin). Int J Pharm Sci Res 2015; 6(1): 147-53.doi: 10.13040/IJPSR.0975-8232.6 (1).147-53.