

CORIANDRUM SATIVUM: A MULTIPURPOSE MEDICINAL PLANT- A REVIEW

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ABSTRACT

Coriandrum sativum is common spice in many of Europe, North Africa, West, Central and South Asia. It is being cultivated for manufacture of perfumes and it appears that it was used in two forms: as a spice for its seeds and as a herb for the flavor of its leaves. Coriander leaves are having medicinal properties, a teaspoonful of fresh coriander leaves juice taken every night with equal quantity of honey acts preventive medicine for all deficiency diseases caused by vitamin A, B₁, B₂, C and iron, leaves contain anti-oxidants, anti-bacterial due to nonionic surfactants, coriander juice significantly decreased the mutagenicity of metabolized aromatic amines (AA), it prevents deposition of lead in Mice by chelating poisonous metal and anthelmintic activity.

KEYWORDS: *Coriandrum sativum*, Coriander leaves and Anti-oxidant activity.

INTRODUCTION

Man has been using herbs and plant products for combating diseases since times immemorial. The Indian subcontinent is enriched by a variety of flora- both aromatic and medicinal plants. This extensive flora has been greatly utilized as a source of many drugs in the Indian traditional system of medicine. In India, the earliest mention of the use of medicinal plants is to be found in Rigveda which was written between 4500-1600 BC.^[1] In the Mediterranean region, coriander cultivation dates back to ancient Egypt; coriander is also mentioned in the Bible, where it is compared to manna.

Coriander seems to have been cultivated in Greece since at least the second millennium BC. One of the linear B tablet recovered from Pylos refers to the species as being cultivated for the manufacture of perfumes and it appears that it was used in two forms: as a spice for its seeds and as a herb for flavor of its leaves.^[2] This appears to be confirmed by archaeological evidence from the same period: the large quantities of the species retrieved from an Early Bronze Age layer at Sitagroi in Macedonia could point to cultivation of the species at that time.^[3] In India it is largely grown in Rajasthan, Gujarat, Tamil Nadu, Madhya Pradesh, Uttar Pradesh. The fresh green leaves from the coriander are broadly used in the field of culinary.^[4] Many people acknowledge soapy taste or a rank smell and hence avoid the leaves the flavor have also be compared to those of the stink bug, because of the presence of aldehydes.^[5] In the present article we have tried to explore the various medicinal uses of coriander leaves.

MATERIAL AND METHODS

Various Ayurveda classics and studies published in journals related to *Coriandrum sativum* a multipurpose medicinal plant are reviewed and analyze.

Pharmacological Actions

Several medical properties have been attributed to *Coriander sativum* Linn. leaves of coriander is known to possess therapeutic activities like diuresis, anti-tussive, anti-vomitic, cardio-tonic, anti-pyretic anti-oxidant, anti-bacterial, anti-mutagenic, chelation, nootropic, anthelmenthic The following section discusses its various therapeutic uses in medicine.

Medicinal Uses of Coriander Leaves

Diuretic: Coriander leaves (*Kustumburu*) possess diuretic activity that increase the rate of urine flow, sodium excretion and are used to adjust the volume and composition of body fluids in a variety of clinical situations.^[6]

Anti-tussive Effect: The Coriander leaves possesses *Kasaghna* and *Shwasaghna* action.^[7]

Anti-vomitic Effect: Coriander leaves are having anti-vomitic (*Chardihara*) action.^[8]

Cardio-tonic Action: Coriander leaves are having cardio-tonic (*Hridya*) action.^[9] Thrombosis, an important event in cardiovascular diseases, can be fatal if platelet aggregation takes place in the narrowed lumen of arteries, causing an impairment of blood flow to the heart. Coriander leaves spice extract showed inhibition of human platelet aggregation as these are rich sources of natural antioxidants.^[10]

Anti-pyretic Action: As *Coriander sativum* pacifies Tridoshas and its fresh leaves (*Kustumburu*) especially pacifies *Pitta* it acts as anti-pyretic (*Jvaraghna*).^[11]

Taste Enhancer: Kalpana Platel et al mentioned *Coriandrum sativum* as stimulant and it is good taste enhancer and can be used in the treatment of Anorexia (*Arochaka*).^[12]

Anthelmintic Activity: Dried coriander leaves are stated to be possessing anthelmintic activity (*Krimighna*) may be due to its effect on inhibition of glucose uptake in the parasites and depletion of its glycogen synthesis.^[13]

Nutritional Fulfillment: A teaspoonful of fresh coriander leaves juice taken every night with equal quantity of honey acts preventive medicine for all the deficiency diseases caused by vitamin A, B₁, B₂, C and Iron and hence very effective in treatment of nutritional anemia.^[14]

Anti-oxidant Effect: Extracts of different polarity from leaves (*Coriandrum sativum*) were investigated for its antioxidant activity. Three different bioassays were used, namely scavenging of the diphenylpicrylhydrazyl (DPPH) radical method, inhibition of 15-lipoxygenase (15-LO) and inhibition of Fe²⁺ induced porcine brain phospholipid peroxidation. Total phenolic content was quantified as well. Positive correlations were found between total phenolic content in the extracts and antioxidant activity. Coriander leaves showed stronger antioxidant activity than the seeds, and in both parts of coriander, the ethyl acetate extract contributed to the strongest activity. In conclusion, addition of coriander to food will increase the antioxidant content and may have potential as a natural antioxidant and thus inhibit unwanted oxidation processes.^[15]

Anti-bacterial Effect: Aliphatic (2E)-alkenals and alkanals characterized from the fresh leaves of the *Coriandrum sativum* L. (Umbelliferae) were found to possess bactericidal activity against *Salmonella choleraesuis* ssp.^[16] *Coriandrum sativum* has antimicrobial potential and were active against *Pseudomonas aeruginosa*.

Nootropic Effect: *Coriandrum sativum* leaves (5, 10 & 15% w/w) were fed orally along with a specially prepared diet for 45 days consecutively to male wistar rats. Elevated plus-maze and Hebb-Williams mazes served as the exteroceptive behavioral models for testing memory. Diazepam, scopolamine, and ageing-induced amnesia served as the interoceptive behavioral models. CSL (5, 10 & 15% W/W of diet) produced a dose dependent improvement in memory scores of young as well as aged rats. CSL also reversed successfully the memory

deficits induced by scopolamine (0.4 mg/kg, i.p.) and diazepam (1 mg/kg, i.p.). *Coriandrum sativum* leaves appear to be an effective nootropic.^[17]

Chelating Agent: Aga. M et al has proved the preventive effect of *Coriandrum sativum* leaves on lead deposition was investigated in male ICR mice given lead (1000 ppm) as lead acetate trihydrate in drinking water for 32 days. Administration of *Coriander sativum* to mice by gastric intubation was performed for 25 days from day 7 after the start of lead exposure up to the end of the experiment. The mice were then sacrificed for comparison of lead distribution. The lead reached its highest concentration in the femur but localized lead deposition in the femur was significantly decreased by meso-2,3-dimercaptosuccinic acid (DMSA), a chelating agent used as a positive control to validate this experimental model. Administration of *Coriander sativum* also significantly decreased lead deposition in the femur and severe lead-induced injury in the kidneys. In addition, urinary excretion of delta-aminolevulinic acid (ALA) which is known to increase with lead intake was significantly decreased after administration of Chinese parsley. The MeOH extract of *Coriander sativum* also reduced lead-induced inhibition of delta-aminolevulinic acid dehydratase (ALAD) activity in vitro. These results suggest that it has suppressive activity on lead deposition, probably resulting from the chelation of lead by some substances *Coriander sativum* leaves.

Anti-mutagenic Agent: The antimutagenic activity of coriander juice against the mutagenic activity of 4-nitro ophenylenediamine, m-phenylenediamine and 2-aminofluorene was investigated using the Ames reversion mutagenicity assay with the *S. typhimurium* TA98 strain as indicator organism. Aqueous crude coriander juice significantly decreased the mutagenicity^[18] of metabolized aromatic amines (AA) in the following order: 2-AF (92.43%) >m-PDA (87.14%) >NOP (83.21%).

CONCLUSION

Coriander is a nutraceutical substance with numerous pharmacological activities some of which have been clinically and experimentally utilized in man and animals. By looking at the medicinal activity of Coriander leaves which is commonly used as condiment is equally important as a potent medicine too, as its having various actions like diuresis, anti-tussive, anti-vomitic, cardio-tonic, anti-pyretic, nutritional fulfillment, nootropic, anti-oxidant, anti-bacterial, anti-mutagenic, anthelmintic, chelating agent that helps in eliminating transitional metals from the body. This review described a variety of approaches that have been undertaken to establish the medicinal effects of coriander leaves.^[19]

REFERENCES

1. Krup V, Prakash LH, Harini A (2013) Pharmacological Activities of Turmeric (*Curcuma longa linn*): A Review. J Homeop Ayurv Med., 2013; 2: 133. doi:10.4172/2167-1206.1000133.
2. Chadwick, John(1976). The Mycenanean World. Cambridge University Press.p. 119.
3. Fragiska, M (2005). Wild and Cultivated Vegetables, Herbs and spices in greek Antiquity. Environmental Archaeology, 10(1): 73-82.
4. Verma *et. al.* A Review on *Coriandrum sativum* (Linn.): An Ayurvedic Medicinal Herb of Happiness. JAPHR, 2011, Volume1, Issue 3.
5. Eriksson *et al.* A genetic variant near olfactory receptor genes influences cilantro preference. *Flavour*, 2012; 1: 22.
6. Sharma P V, Sharma G. kaiyadeva Nighnatu. reprint ed. Varanasi: Chaukhamba Orientalia, 2009; 220.
7. Shalingram L. Shalingram Nighantu. Pune: 7-8 vol. Sri Sanjay Bajaj Sri Venkateshwara press Bombay Hodapsas Industrial state, 1997; 108.
8. Chunekar k, Pandey GS. Bhavprakash Nighantu. Varanasi: Chaukhamba Bharati Academy, 2010; 33.
9. Acharya Y T. Sushruta samhita of Sushruta with Nibandhasangaraha commentary of Sri Dalhanacharya and Nyayachandrika Panjika of Gyayadascharya on Nidansthana. reprint. Varanasi: Chaukhamba Surabharati prakashan, 2003.p.
10. Suneetha JW, Krishnakantha TP. Antiplatelet Activity of coriander and curry leaf spices. Pharm Biol., 2005; 43: 230 –233.
11. Sharma P V, Sharma G. kaiyadeva Nighnatu. reprint ed. Varanasi: Chaukhamba Orientalia, 2009; 220.
12. Tripathi B. Caraka Samhita of Agnivesh with Charaka-chandrika Hindi Commentary. Varanasi: Chaukhamba Surabharati Prakashan, 521.
13. Singh D, Swarnkar CP, Khan FA. Anthelminticresistance in gastrointestinal nematodes in livestock in India. J Vet Parasit, 2002; 16: 115-130.
14. Dr Aman. Medicinal Secrets of Your Food. 2nd ed. Bangalore: Indo American Hospital Trust, 1996; 337.
15. Wangensteen, H.; Samuelsen, A. B.; Malterud, K. E. (2004). Antioxidant activity in extracts from coriander. Food Chemistry, 2004; 88(2): 293.

16. Adriana De Marco, Felice Senatore, Francesco Capasso, Nicola S Iacobellis and Pietro Lo Cantore, Coriandrum sativum and fenugreek has broad antibacterial activity against bacterial diseases of plants, J Agric Food Chem., 2004; 52: 7862-6.
17. Seyed Sadegh Zargar, Nattaj, Pooya Tayyebi & Vahid Zangoori, The effect of *Coriandrum sativum* seed extract on the learning of newborn mice by electric shock: interaction with caffeine and diazepam, Psychology Research and Behavior Management, 2011; 13-19.
18. Cortes-Eslava J, Gomez-Arroyo S, Villalobos-Pietrini R, Espinosa-Aguirre JJ. Antimutagenicity of coriander (*Coriandrum sativum*) juice on the mutagenesis produced by plant metabolites of aromatic amines. Toxicol Lett., 2004; 153(2): 283-92.
19. Cortes-Eslava J, Gomez-Arroyo S, Villalobos-Pietrini R, Espinosa-Aguirre JJ. Antimutagenicity of coriander (*Coriandrum sativum*) juice on the mutagenesis produced by plant metabolites of aromatic amines. Toxicol Lett., 2004; 153(2): 283-92.