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Review article

PHARMACOLOGICAL ACTIVITIES OF POLYHERBAL FORMULATION - SANJIVANI VATI

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Abstract

Sanjivani Vati is official in Ayurvedic formulary of India and is prescribed for the treatment of cough and fever. It is a polyherbal preparation containing ten ingredients. Sanjivani Vati is a diaphoretic formula that increases sweating. It is a detoxifying formula that reduces aama. This "Aama" leads to blockage in channels and many diseases like high cholesterol, blocked coronary arteries, piles, auto-immune disorders like sarcoidosis, rheumatoid arthritis. The ingredients of Sanjivani Vati are universal digestive aid, antihelminthic, diuretic, carminative etc. This review explains the potential of Sanjivani Vati which helps the researcher to explode more about this ayurvedic formulation.

Keywords: Polyherbal formulation, Diaphoretic, Aama, Vati, Ayurvedha.

Introduction:

Ayurveda, the traditional Indian system of medicine, is regarded as the most methodical and efficient among all such systems practiced in different parts of the world. Because of the complexity, and of adverse effects associated with, the use of chemical drugs, much of the world's population is turning toward alternative systems of medicine. The demand for plant based medicine has increased many folds in both developing and developed countries (1,2). Description of the different Ayurvedic formulations in classic texts and the Ayurvedic pharmacopoeia are based on observation of properties which are not well accepted. The World Health Organization is currently emphasizing quality control of medicinal plant products by use of modern controlled techniques and use of suitable standards (3). Standardization of Ayurvedic preparations using advanced techniques for analysis of their constituents is, therefore, extremely important for establishing their authenticity, credibility, and acceptance worldwide (4).

Sanjivani Vati is Ayurvedic preparations. These formulations are marketed as solid dosage forms (pills or tablets). Sanjivani literally means "one that infuses life" and helps to strengthen the immune system and Vati means tablet (5). The method of preparation of Vati is that the drug of plant origin are dried and made into fine powders, separately. The mineral are made into bhasma or sindura. In cases where parade and gandhaka, kajjali is made first and

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other drugs are added, one by one, according to the formula. These are put into a khalva and ground to a soft paste with the prescribed fluids. When the mass is properly ground and is in a condition to be made into pills, sugandha dravyas, Like Kasturi, Karpura, which are included in the formula, are added and ground again. The criterion to determine the final stage of the formulation before making pills is that it should not stick to the fingers when rolled. Pills may be dried in shade or in sun (6). Sanjivani Vati is a diaphoretic formula that increases sweating. It is a detoxifying formula that reduces aama. As a digestive formula it reduces gas. Triphala detoxifies the digestive tract and losses stool. Ginger is a universal digestive aid. The vidhanga fruit is an antihelminthic, diuretic, carminative. It is a typical remeady for common cold with fever (7).

Sanjivani Vati, it is mainly used in treatment of ajirna (dyspepsia), gulma (abdominal lump), visuci (gastro-enteritis), sarpadamsa (snakebite), diarrhoeal (8). The concept of "Aama" helps in understanding the mechanism of action of Sanjivani Vati. "Aama" is the byproduct of faulty metabolism. It is accumulation of endotoxins within the body. The reason according to Ayurveda is low digestive fire. The fire that does not let any metabolite to accumulate is not able to consume them completely. This "Aama" leads to blockage in channels and many diseases like high cholesterol, blocked coronary arteries, piles, auto-immune disorders like sarcoidosis, rheumatoid arthritis and many others.

Sanjivani Vati combats all these as it ignites the digestive fire and helps the body to just get rid of all the mid-way metabolites from the system (9). Sanjivani Vati is recommended in dose of one hundred twenty five to five hundred gram three times a day with honey juice in treatment of typhoid fever in Ayurvedic system of medicine (10). Sanjivani Vati is used as a classical prescription in treatment of vishuchika (gastroentereties). This disease is result if three kinds of ajirna (amaajirna, vidagdhajirna and vishtabdharjirna) are neglected or improperly treated and is caused only in people who have no self control. This disease is caused by accumulation of ama-dosha in the body, which in turn is caused by overeating (11). Sanjivani Vati is prepared by adding vidanga, sunthi, pippali, haritaki, vibitaki, amalaki, vacha, guduchi, shudha bhallataka, and shudha vatsnabh in equal quantity with gomutura and then mixed well (8).

Sanjivani Vati, a poly herbal preparation containing ten ingredients, is prescribed for the treatment of cough and cold (6). It contains one part each of vidang (*Embelia ribes*), sunthi (*Zingiber officinalis*), pippali (*Piper longum*), haritaki (*Terminalia chebula*), amla (*Emblica officinalis*), bibhitaka (*Terminalia bellerica*), vaca (*Acorus calamus*), gudduci (*Tinosporia cordifolia*), bhallataka (*Semicarpus anacardium*), and visa (*Aconitum heterophyllum*) (12). Sanjivani Vati ingredient contains the main principle constituents of which are tannins, embelin and piperine (13).

Pharmacological Activity of ingredients of Sanjivani Vati:

1. *Embelia ribes* Burm. (Myrsinaceae) commonly known as Vidanga, is a large woody climbing shrub and is widely distributed throughout India. The fruit part of the *Embelica Ribes* is used (14). The embelia is the main constituent of Sanjivani Vati. *Embelia ribes* possess antihelmintic (15-17), antifertility action (18-19), antidiabetic (20-21), antidyslipidemic (22), antioxidant activity (23-25), analgesic property (26). The plant is used as an anti-inflammatory drug to relieve rheumatism and fever

(27). The fruit cures tumors, bronchitis, jaundice and mental disorders (28), antihyperglycaemic activity (29-30), antifungal (31,32), antibiotic (33), dyslipidemia (34), cardioprotective (35-36), antiulcer (37), carminative (38), purgative (39), neuroprotective effect (40), insecticidal activity (41,42), contraceptive activity (43), trypsin inhibition (44), antiplaque activity (45), antimicrobial (46), antituberculosis and antihyperglycaemic activity (47).

2. *Zingiber officinale* Rosc. (Zingiberaceae) commonly named as Sunthi. The rhizome part of zinger is used. The plant is widely cultivated all over India, Bangladesh, Taiwan, Jamaica and Nigeria. This perennial grows in warm climates (48). Ginger has been reported to contain usually volatile oil, gingerols and shogaols and about 6-8 lipids (49). Ginger possess anti-emetic activity (50-52), anti-ulcer activity (53-54), antiplatelet activity (55-57), anti-inflammatory activity (58,59), antipyretic activity (60-61), stimulate the appetite (62), Ginger juice produces antimotion sickness action possibly by central and peripheral anticholinergic and antihistaminic effects (63), antioxidative property (64), analgesic (65), antitussive (66), expectorant activity (67), hypolipidaemic activity (68), immunomodulatory (69), thermogenic activity (70,71), antiviral activity (72,73), nematodicial activity (74), insect repellent activity (75,76), molluscicidal activity (77)**,** anticancer (78), cardiovascular (79), carminative (80), antifungal (81)**.**

3. *Piper longum* Linn. (Piperaceae) commonly named as Pippali. It is considered as a native of south Asia and is found both wild as well as cultivated, throughout the hotter part of India from central to the north-eastern Himalayas; the herb also grows wild in Malaysia, Singapore, Bhutan (82). Piper longum is used as bioavailability enhancer, digestive, in treatment of bronchitis and also hepatoprotective agents (83). The piper species contain the piperidine type of alkaloid, piperine which is a central nervous depressant. Piperine the alkaloid is responsible for the pungency of *P. nigrum* L. and *P. longum* L. (84). *Piper longum* possess anti-platelet effect (85), anti-asthmatic effect (86), antidepressant activity (87), antithyroid activity (88), antioxidant (89), fertility Enhancer (90,91), antitumor activity (92). It has also antiamoebic activity and stimulanteffect (93), analgesic activity (94), immunomodulatory (95), stomachic, abortifacient, aphrodisiac (96), thermogenic and carminative (97,98), hypocholesterolaemic (99), intestinal disorder (100), antibacterial (101,102), hepatoprotective (103), antiallergic activity (104)**,** antinflamatory activity (105), antiepileptic (106), anthelmintic (107), antidysenteric (108), apoptosis inhibition (109), hepatitis (110), genotoxicity (111), vasodilating (112), bioenhancer (113).

4. *Terminalia chebula* Retz (Combretaceae) commonly named as Haritaki, is an important herbal drug in Ayurvedic pharmacopeia. It is called as the "king of medicine" because of its extraordinary potential of healing. In Ayurveda it is thought to destroy all diseases and remove all waste from the body. At the same time, it is known to help tissue growth and health. It is found all over India from eastern to western region. The fruit part of *terminalia chebula* is used (114). It is one of the important ingredients of Sanjivani Vati. *Terminalia chebula* is reported to be antimicrobial (115-116), hepatoprotective, antispasmodic, antisecretory, antihypertensive (117-118), antiinflamatory (119), antihyperglycemic (120), immunomudulatory (121), antioxidant (122,123), antibacterial activity against

salmonella typhi, *helicobactor pylori* (124), antiamoebic (125), cardiotonic (126), gastroenteritis, skin diseases, urinary tract infection wound infections (127), anti-viral activity (128), antianaphylactic (129), antitumour (130), antimutagenic activity (131).

5. *Terminalia belerica* Roxb (Combretaceae) commonly known as "belleric myrobalan" and locally as "bahera" is a large deciduous tree, found throughout central Asia and some other parts of the world. The plant is reported to contain termilignan, thannilignan, anolignan B, gallic acid, ellagic acid, ß-sitosterol, arjungenin, belleric acid, bellericosidem, flavonoids and tannins (132). *Terminalia belerica* as the ingredient of Sanjivani Vati is also used in Triphala. Triphala or "three fruits" is the most frequently prescribed herbal remedy. It has the unique ability to gently cleanse and detoxify the body while at the same time strengthening and nourishing it (133). *Terminalia bellerica* possesses antioxidant (134), antispasmodic, bronchodilatory (132), antimicrobial (135,136), cardioprotective (137,138), hepatoprotective (139), hypoglycemic (140), antiulcer activity (141), antibacterial activity (142), antihypertensive (143), antinociceptic (144), antiobesity (145), antidiabetic (146), antitumour activity, antifungal, antiviral, antimalarial (147), immunomodulatory (148), antiobesity, astringent, antiinflamatory, eye disorder (149).

6. *Emblica officinlis* Gaertn (Euphorbiaceae) is commonly Known as amlaki, amluki, amla, amlaki . The pulp contains 5.09 percent total sugars and 5.08 per cent reducing sugars. The ascorbic acid content is 1,094.53 mg per 100 ml of juice. The tannins and pectin content of the pulp is 2.73 per cent and 0.59 per cent respectively (150). Several constituents of *E. officinalis* fruit has been identified, mainly the hydrolysable tannins, emblicanin A, emblicanin B, punigluconin and pedunculagin (151). It has antidiarrhoea haemorrhage (152), Adaptogenic (153), hepatoprotective (154), antitumor (155), hypocholestrolemic (156), antioxidant (157), antiulcerogenic (158), antipyretic, analgesic, antiviral, antiinflamatory (159), antifungal activity (160), hypolipidemic activity (161), immunomodulatory,antistress, antimicrobial, anabolic activity (162), antidiarrhoea (163).

7. *Acorus calamus* Linn. (Adoraceae) is commonly known as Sweet flag, bach (hindi), vashampu (Tamil), Vasa. *Acorus calamus* Linn commercially occurs in both peeled and unpeeled forms. This perennial herb is common on the banks of streams and in damp marshy places. Apart from the terpenes a few commonly occurring steroids and xanthones had also been reported in *Acorus calamus* (164). The rhizome of the plant has medicinal properties against bugs, moths, lice, emetic (165). It has antimicrobial (166), antiinflammatory (167), anticancer (168), antischizophrenia (164), insecticidal (169), immunomodulatory, anticonvulsant, antioxident, anticellular (170), antibacterial (171), anti-spasmodic, carminative (172), antihelminthic (173), antifungal properties (174), antiulcer (175), tranqulizer (176), antitumour (177), insecticidal (178), antianalgesic (179), antiitching (180), antianxiety (181), antispasmodic (182), neuropharmacological activity (183), antipyretic (184).

8. *Tinospora cordifolia* (Adoraceae) commonly named as Guduchi is a large, glabrous, deciduous climbing shrub. It is distributed throughout tropical Indian subcontinent and China. In Hindi, the plant is commonly known as Giloya, which is a hindu mythological term that

refers to the heavenly elixir that have saved celestial beings from old age and kept them eternally young (185,186). *Tinospora cordifolia* possess anti-leprotic, antistress, anti-malarial activities (187,188)**,** anticancer (189), antidiabetic and hyperglycaemic activity (190-191), antiinflamatory (192,193), hypolipidaemic (194), antioxidant (195), antistress (196), antiulcer (197), immunobiological activity (198), liver disorder (199,200), mental disorder (201), hepatic disorder (202), stomachic, diuretic (203). The extract of its stem is useful in skin diseases (204), antispasmodic, antipyretic (205), anti-allergic (206), hypoglycaemic (207), hepatoprotective (208).

9. *Semecarpus anacardium* Linn. (Purified**)** **(**Anacardiaceae) It is commonly named as Ballataka, Bhilwa or marking nut. It is a deciduous tree distributed in the sub-himalayan tract and in tropical parts of India. It is also widely distributed in the forests of similpal biosphere Reserve, Orissa. Semecarpus anacardium nut reveal the presence of bioflavonoids, phenolic compounds, bhilawanols, minerals, vitamins and amino acids (209). *Semicarpus anacardium* possess antihelmintic, antifungal, cardiovascular activity (210-212), anticarcinogenic (213), antioxident activity (214), anti-inflammatory activity (215), antimicrobial (216,217), neuroprotective activity (209-218), antiatherogenic effect (219), hypoglycemic and antiglycemic effect (220), immunomodulatory and antiinflammatory effects (221), antimutagenic effect (222) Antiasthmatic (223), nephrotoxicity (224), antispermatogenic effect (225), antitumour activity (226), antiarthritis, nervous Debilities (227).

10. *Aconitum Ferox* L. (Ranunculaceae). It is commonly called as Shudha Vatsnabh. It is found in the alpine Himalayas from Sikkim to Garhwal & Assam. Root posses depressant activity, but after mitigation in cow's milk for 2-3 days, they exhibit stimulant activity. It is used as Narcotic, Sedative, antimicrobial, anti-inflammatory (228). It posses antiperiodic, analgesic, antitussive, antidiarrhoea, dyspepsia, anti- poisonous activity (149).

Conclusion

Sanjivani Vati possesses significant pharmacological activities. The standardized, Sanjivani Vati preparation has been found to exhibit multifaceted therapeutic effects. Therapeutic efficacy of Sanjivani Vati is extensively used in Ayurvedic System of Medicine has been established through modern testing and evaluation (pre-clinical and clinical trial) in different disease condition.

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