



A Review Of The Literature On Siddha Medicine Using Maanthamathirai: A Drug Review For The Management Of "Maanthasanni" (Autism Spectrum Disorder)

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Abstract

A holistic approach to living well is the fundamental approach of the Siddha medical system. The disturbed three dhodam led to the development sanni, in paediatrics sanni is accompanying with Maanthan is refers as Maantha sanni occurs. Maanthasanni is the Siddha term for Autism Spectrum Disorder (ASD). Autism has to be treated as a top priority in the worldwide mental health community. The prevalence of autism has increased over time in India, much like it did in the west. According to multiple research, the estimated prevalence of ASD in India is between 0.11 %. Children diagnosed with Autism Spectrum Disorder (ASD) exhibit varying degrees of difficulties in social engagement and communication, regardless of whether they have language problems. Maanthasanni in the Siddha system, Maantha mathirai is an effective management tool for it. The majority of Maantha mathirai's components are potent anti-oxidants, antioxidant, antidepressant, antistress, hepatoprotectors, and anti-convulsants. As a result, this article provides information on the medication's effectiveness for Maanthasanni (ASD) based on a survey of numerous academic publications and scientific investigations.

Introduction

Throughout the world, autism spectrum disorder (ASD) is a significant contributor to developmental disabilities. ASD is the umbrella term for a group of neurodevelopmental diseases that impact brain development and can cause a range of psychological illnesses in children with the disorder. (1) In Siddha Maanthasanni describe as autism spectrum disorder, a cognitively or physically lethargic child was noted in the first year of life and between the ages of one and three years, disorder marked by slowing down of all body functions, particularly the GIT and occasionally even the brain(2).

In India ASD prevalence, Children aged 1 to 18 years in a rural context had a pooled percentage prevalence of 0.11 [95% confidence interval (CI) 0.01-0.20], while children aged 0 to 15 years in four urban studies had a pooled percentage prevalence of 0.09 (95% CI 0.02-0.16). (1)

Numerous neurological conditions, such as epilepsy, macrocephaly, migraines, and congenital anomalies of the nervous system, sleep disturbances affect over 80%, making them a serious issue. Among children with ASD, gastrointestinal (GI) issues are far more common, occurring in 46% to 84% of cases. Chronic constipation, chronic diarrhea, gastroesophageal reflux disease, nausea, vomiting, flatulence, chronic bloating, abdominal discomfort, ulcers, colitis, inflammatory bowel disease, food intolerance are the most common gastrointestinal issues seen in children with ASD. several types of inborn defects in their

metabolism, such as diseases related to mitochondria, creatine metabolism, and specific amino acid metabolism are also more common in children with autism.

The review goal is to learn more about the Siddha formulation Maantha mathirai, which is used to treat Maanthasanni (ASD) and its related symptoms. A polyherbal preparation Maantha mathirai is mentioned in the Sirorathinavaithiya boosham . The majority of the components in the mixture possess strong anti-oxidant, anti- depressant, hepatoprotective, Anxiolytic, and anti-convulsant properties. Using this effective medication to treat Maanthasanni is safe and may benefit children with ASD.

Drug Details

Preparation of drug

Ingredients

- 1.(Seeragam)Cuminum cyminum 33.6 grams,
- 2.(Kayam) Ferula asafoetida 33.6 grams ,
- 3.(Karunseeragam) Nigella sativa 33.6 grams,
- 4.(Ulli)Allium sativum 33.6 grams,
- 5.(Oomam) Trachyspermum ammi 33.6 grams,
- 6.(Chukku) Zingiber officinale 33.6 grams,
- 7.(Milagu) Piper nigrum 33.6 grams,
- 8.(Thippili) Piper longum 33.6 grams,
- 9.(Vasambu) Acorus calamus 12.6 grams,
- 10(Kadukai) Terminalia chebula 21 grams
- 11.(Saranai) Triantherma decandra 21 grams,
- 12.(Poduthalai) Phyla nodiflora 21 grams,
13. (Velliparuthi) Perularia daemia 21 grams,
- 14.(Thumbai) Leucas aspera 21 grams ,
- 15.(Musumusukai) Mukia madaraspatana Required amount
- 16.(Kuppaimeni) Acalypha indica Required amount
- 17.(Karisalai) Eclipta prostrata Required amount.

Method of Preparation

The above 14 drugs are dried separately and make them in a fine powder form, then it is grinded with the juice of **thumbai,poduthalai,musumusukai,kuppaimeni** and **kaiyanthakarai** for 3 hours of each juice, and make them in a tablet form.

Usage

Internal

Dosage

(Sundakai alavu) 798mg $\frac{1}{4}$ (199.5mg) to $\frac{1}{2}$ (399mg) tablet with hot water

Drug Storage

The trial drug is stored in clean dry air tight container and it is dispensed to the patients.

Indication

Maantham

S.NO	NAME	BOTANICAL NAME	ACTION
1	SEERAGAM	Cuminum cyminum	Antidepressant, Antioxidant(3) Depression may have oxidative stress as a contributing factor to its pathophysiology. Stated differently, depression was caused by an imbalance or decrease in antioxidant activity. Antioxidants have been shown to have antidepressant-like effects and to impede serotonin (5-HT) reuptake. It has been shown that Cuminum cyminum blocks 5-HT reuptake by raising the quantity of 5-HT in the synaptic cleft, which causes weight loss. Cuminum cyminum appears to have antidepressant-like properties due in part to the dopaminergic system, even if cuminaldehyde plays a role in the serotonergic system. According to a research, Cuminum cyminum's cuminaldehyde lowers oxidative stress.
2	KAYAM	Ferula asafetida	Anticonvulsant (4) The PTZ kindling model's anti-convulsant characteristics worked better at 100 mg/kg of asafoetida. Asafoetida may improve the inhibitory neurotransmission mediated by gamma amino butyric acid type A (GABAA) receptors, hence lessening the intensity of seizures. Medication that lowers T-type calcium can also stop PTZ-induced seizures.
3	KARUNSEERAGAM	Nigella sativa	Antioxidant (5) Nigella sativa treatment (alone or combination) for 60 d decreased the elevated MDA and liver enzyme levels and also increased the reduced antioxidant enzyme levels in CCl4-treated rats. It has a protective effect against oxidative damage in isolated rat hepatocytes. It was found that the fixed oil of Nigella sativa has both antioxidant and anti-eicosanoid effects greater than thymoquinone which is its active constituent. Furthermore, it has antioxidant activity by suppressing the chemiluminescence in phagocytes

4	ULLI	Allium sativum	Antioxidant, hepatoprotective (6) Anti-diabetic, anti-cancer, antioxidant, and immune-modulating properties of garlic are well established. In rat kidney and liver, it has been demonstrated to suppress LPO and the dose-dependent production of endogenous antioxidants. Because garlic has a larger quantity of organosulfur compounds, Alliinase reacts with alliin (S-allylcysteine sulfoxide) to form allicin, an antioxidant that has been shown to inhibit LPO and scavenge hydroxyl radicals. Garlic's thiosulfinates and other secondary metabolites, such as steroids, terpenoids, flavonoids, and other phenols, can also boost the activity of antioxidant enzymes like glutathione peroxidase, catalase, superoxide dismutase, and glutathione-s-transferase. Garlic utilized as a substitute medication to cure a variety of infections; to reduce blood pressure, cholesterol, and sugar; to stop blood clotting; to strengthen the immune system; and to maintain.
5	OOMAM	Trachyspermum ammi	Antioxidant (7) the role of inflammatory cells regulated free radical production . Anti-oxidant and anti-inflammatory activity of the Trachyspermum ammi may be attributed to the presence of flavonoids and phenols
6	CHUKKU	Zingiber officinale	Anticonvulsant (8) Zingiber officinale hydroethanolic extract was shown to exert antiseizure activity in the acute intravenous PTZ test and active constituents responsible for this effect
7	MILAGU	Piper nigrum	Anxiolytic Antidepressant(9) Important black pepper (Piper nigrum L.) alkaloid piperine has analgesic, anti-inflammatory, anticonvulsant, antioxidant, antidepressant, and cognitive-enhancing properties. It is widely used as a condiment and flavoring for various kinds of savory foods. Evidence from animal models of cognitive deficit similar to AD suggests that piperine guards against neurodegeneration and cognitive impairment . Additionally, we were able to demonstrate in a recent study that the methanolic extract of P. nigrum fruits buffered the oxidative stress caused by A β (1–42) to improve spatial memory impairment.
8	THIPPILI	Piper longum	Anti stress(10)

			<p>Urinary values for VMA, 5 HIAA, HVA, and ascorbic acid revealed that, after stress induction, levels of VMA and 5 HIAA were greater, whereas those of HVA and ascorbic acid were lower. On the fourth day, there was evidence of stress recovery. When <i>P. longum</i> extract was administered to the animals on a daily basis under control conditions, there was no discernible change in VMA, 5HIAA, HVA, or ascorbic acid levels relative to baseline. On the fourth day, there was evidence of drug recovery. An hour before stress was induced, <i>P. longum</i> extract was administered. This resulted in a substantial ($p < 0.01$) decrease in VMA and 5HIAA levels and a significant ($p < 0.01$) increase in HVA and ascorbic acid levels when compared to stress alone.</p>
9	VASAMBU	<i>Acorus calamus</i>	<p>Anti depressant(11) 5-hydroxytryptamine (5-HT) receptor syndrome and high Plus Maze (HPM) activity were observed after eating Vasambu. Concurrent Vasambu therapy prevented the onset of stress-induced behavioral impairments in walking and childrearing in the depression model. Similarly, in the High Plus Maze Test (HPMT), rats that received Vacha were able to continue their exploratory activities. Compared to the stressed group, the animal in the adopted depression model had much less behavioral impairment after it got Vacha therapy.</p>
10	KADUKKAI	<i>Terminalia chebula</i>	<p>Anti oxidant(12) Phytochemical analysis of <i>T. chebula</i> has revealed the presence of ascorbic acid (vitamin C), mannitol, corilagin, ellagic acid, tannic acid, ethyl gallate, chebulic acid, and chebulagic acid. One publication states that <i>T. chebula</i> has a 32% tannin content. <i>T. chebula</i> extract phytochemical studies are therefore necessary and provide important information, most important factor in the extraction of antioxidants. Methanol, water, and ethanol are the best solvents to use while extracting plants. Alcoholic solutions and polar solvents also usually produce good extraction outcomes.</p>
11	SAARANAI	<i>Trianthema decandra</i>	<p>Antioxidant(13) Using the thiocyanate technique, <i>T. portulacastum</i> hydrolysates are evaluated for their ability to suppress linoleic acid</p>

			peroxidation in vitro (14). One polyunsaturated fatty acid that is particularly prone to autoxidation, which produces peroxides, is linoleic acid. Fe ³⁺ produced from oxidized Fe ²⁺ by these peroxides. spectrophotometrically as it forms a complex with SCN. The hydrolysate's antioxidant activity and the complex's ultimate concentration.
12	PODUTHALAI	Phyla nodiflora	Hepatoprotective(14) In acute experimental liver injury caused by paracetamol, the hepatoprotective and antioxidant properties of Lippia nodiflora methanol extract (200 and 400 mg/kg, orally, for 7) were assessed. The methanol extract showed a significant (p<0.001) hepatoprotective effect; it also reduced bilirubin, lipid peroxidation, SGOT, SGPT, and ALP activity. In a dose-dependent manner, it also significantly (p<0.001) increased the levels of total proteins, glutathione, catalase, and superoxide dismutase.
13	VELIPARUTHI	Pergularia daemia	Anti depressant(15) phytochemical analysis of Pd-ALE showed the presence of alkaloids, amino acids, flavonoids, reducing sugar, saponins, steroids, triterpenoids and tannins. One possible explanation for pergulariadaemia is its modulatory impact on central monoamines. Based on the preclinical study data, we may suggest that Pergulariadaemia is a promising candidate for antidepressant action.
14	THUMBALAI	Leucas aspera	Anxiolaxant(16) The alkaloid itself has a significant function as an organic antioxidant. The pharmacological characteristics of the isoquinoline alkaloids—stylophine, protopine, fumaritine, fumaricine, fumarophycine, fumariline, and fumarofine—vary. Known as "nature's tender drugs," flavonoids are a broad class of naturally occurring plant polyphenolic chemicals that include flavones, flavonols, isoflavones, flavonones, and chalcones. Flavonoids have a variety of biological and/or pharmacological actions. Because L. aspera extracts contain flavonoids and alkaloids, its antioxidant

			action may be linked to these modes of activity.
15	MUSUMUSUKAI	Mukia madaspatana	Anxiolytic(17) The benzodiazepine diazepam was the standard used in this experiment, thus it's possible that the extract shares the same anxiolysis mechanism. Research on M. madaspatana's phytochemistry confirmed the presence of tannins, saponins, and flavonoids. Therefore, it is plausible that the CNS activity in leaves is caused by these kinds of chemical components.
16	KUPPAIMENI	Acalypha indica	Hepatoprotective(18) A. indica's methanol extract demonstrated the presence of many phenolic components, such as polyphenols, flavonoids, phenolic acids, and others, with a phenolic concentration of 10.89% w/w. Using the quercetin calibration curve, it was shown that the flavonol and flavone levels in the methanol extract of A. indica were 1.76% w/w. The naringenin calibration curve indicated that the flavanone content of the A. indica methanol extract was 6.55% w/w. The entire flavonoid content of A. indica (8.31% w/w) is what causes the hepatoprotective effect.
17	KAYANTHAKARAI	Eclipta prostrata	Hepatoprotective(19) Free radicals in cytochrome P 450 The hepatoprotective characteristics of E. alba are a result of its inhibition of microsomal enzymes, which restricts the production of free radicals. This is due to the fact that CCl4 metabolism has been connected to hepatocyte injury caused by lipid peroxidation. Furthermore, E. alba is claimed to have an antioxidant effect, promote hepatic regeneration, and scavenge free radicals to stop lipid peroxidation.

Conclusion

An effective treatment for Maanthasanni (ASD) and its co-morbid disorders is Maantha mathirai, as stated above. Additionally, every plant element contains anti-oxidant, immunomodulatory, hepatoprotective, and antiepileptic properties that significantly improve health and quality of life; for this reason, they are utilized in the management of maanthasanni.

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