International Journal on Science and Technology (IJSAT)
E-ISSN: 2229-7677 ● Website: www.ijsat.org ● Email: editor@ijsat.org

Kaya Karpam Interventions for Reproductive Health: A Systematic Review of Siddha Medicine's Approach to Infertility

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Abstract

Infertility is a rising global concern linked to environmental toxins, delayed parenthood, and oxidative stress. While modern interventions focus on hormonal manipulation, the Siddha system provides a holistic rejuvenative framework known as **Kaya Karpam**. This review evaluates the role of thirty specific Kaya Karpam interventions in managing both male and female infertility. By targeting the Seven Thathu (vital tissues) and modulating the endocrine system through bioactive phytochemicals, these interventions offer a multi-dimensional approach to reproductive health. This paper synthesizes traditional Siddha wisdom with modern pharmacological insights to provide a roadmap for integrative fertility care.

Keywords

Infertility, Kayakarpam, phytochemical profiles, Reproductive health, Siddha medicine

1. Introduction

Clinical infertility is typically identified when a couple is unable to achieve pregnancy despite twelve months of consistent, unprotected intercourse [1]. While contemporary obstacles ranging from chronic psychological stress and nutritional deficiencies to environmental pollutants and the trend of delayed parenthood—are significant contributors [2], the approach to treatment varies between systems. Modern protocols frequently prioritize Assisted Reproductive Technology (ART) and hormonal interventions [1]. Conversely, the Siddha system of medicine focuses on systemic rejuvenation and addressing the physiological root causes of reproductive failure [3, 4].

According to Siddha tenets, physical well-being is predicated on the equilibrium of the three physiological humors: **Vazhi**, **Azhal**, and **Iyyam**. The condition of infertility, referred to as **Maladu**, is viewed as a consequence of the impairment either[5] in volume or potency of the vital reproductive fluids, **Vindhu** (male) and **Natham** (female).[6] Such disharmony typically results in the defective maturation or unsuccessful nidatory stability of the **Sukila-Suronitham** (the embryonic unit).[7]

In contrast to the emphasis placed on **Assisted Reproductive Technology (ART)** and **Hormone Replacement Therapy (HRT)** in Western clinical settings, the Siddha system proposes **Kaya Karpam** (literally "body fortification") as a dual-action preventive and therapeutic model. This discipline utilizes specialized Karpam pharmacotherapy and **Pranayama** (yogic breathing)[11] to retard cellular senescence and optimize the functional integrity of the **Seven Thathus** (primary tissues)[8][9]. A central objective of this approach is the refinement of **Sukilam** (the reproductive tissue), the final product of metabolic transformation. This study examines the efficacy of these rejuvenative protocols in managing complex etiologies, including **Polycystic Ovary Syndrome (PCOS)[10]**, inflammatory disorders of the uterus, and male factor infertility such as **oligospermia**.

Phytochemical Review of Kaya Karpam Interventions

S.No	Siddha / Common Name	Botanical Name	Major Phytochemicals	Role in Infertility Management
1	**Kaddukai**	Terminalia chebula	Chebulagic acid, Gallic acid	Detoxifier; ensures proper nutrient absorption for Dhathu formation.[17]
2	**Orithal Thamarai**	Hybanthus enneaspermus	Flavonoids, Alkaloids	Increases sperm count; cooling agent for the uterine environment.[17,18,19]
3	**Pon Seenthil**	Tinospora cordifolia	Tinosporin, Berberine	Immunomodulator; protects germ cells from oxidative stress. [13,20,21]
4	**Karuvembu**	Murraya koenigii	Mahanimbine, Girinimbine	Blood purifier; treats pelvic inflammatory conditions.[17,22,23]
5	**Karisalai**	Eclipta alba	Wedelolactone, Flavonoids	Hepatoprotective; aids in steroid hormone metabolism.[17,24,25]
6	**Sivanar Vembu**	Indigofera aspalathoides	Phenols, Flavonoids	Anti-inflammatory; useful in Tubal blocks/PID.[17,26,27]
7	**Keezhanelli**	Phyllanthus niruri	Phyllanthin, Lignans	Regulates FSH/LH levels via liver enzyme optimization.[17,28,29]
8	**Sengkodiveli**	Plumbago indica	Plumbagin	Stimulates Deepana (digestion); treats anovulatory cycles[30,31]
9	**Neermulli**	Hygrophila auriculata	Alkaloids, Sterols	significantly improves sperm motility.[32,33]

S.No	Siddha / Common Name	Botanical Name	Major Phytochemicals	Role in Infertility Management
10	**Vellai Erukku**	Calotropis gigantea	Calotropin, Glycosides	Clears Kapha-related blocks in reproductive tracts.[34,35]
11	**Karunthulasi**	Ocimum sanctum	Eugenol, Ursolic acid	Adaptogen; reduces cortisol-induced reproductive failure.[36,37]
12	**Senkaranthai**	Sphaeranthus indicus	Sesquiterpenes	Ovarian tonic; regulates the menstrual cycle.[38,39]
13	**Sotrukattralai**	Aloe barbadensis	Aloin, Polysaccharides	Corrects PCOS; promotes follicular maturation.[40,41]
14	**Amukkara**	Withania somnifera	Withanolides	enhances HPO axis function.[42]
15	**Urulai**	Solanum tuberosum	Vitamin B6, Starch	Nutritive support for endometrial lining development.[43]
16	**Puliyarai**	Oxalis corniculata	Vitexin, Tannins	Neutralizes excessive Pitham (heat) affecting sperm viability.[44,45,46]
17	**Koraikizhangu**	Cyperus rotundus	Cyperene, Flavonoids	Relieves uterine congestion; manages PCOS.[47,48]
18	**Vendhayam**	Trigonella foenum-graecum	Diosgenin, Saponins	Phytoestrogenic; supports ovulation in estrogen-deficient cases.[49,50]
19	**Thamarai (Pollen)**	Nelumbo nucifera	Quercetin, Kaempferol	Hemostatic; prevents early pregnancy loss/spotting.[51,52]
20	**Brahmathandu(pollen)**	Argemone mexicana	Protopine, Berberine	cleanses the reproductive fluids.[53,54]
21	**Moongil (Root)**	Bambusa arundinacea	Silicates, Amino acids	Strengthens the structural integrity of the uterus.[55,56]
22	**Naval(root)**	Syzygium cumini	Jamboline, Tannins	Manages insulin-resistance-linked infertility (Diabetic PCOS).[16]

S.No	Siddha / Common Name	Botanical Name	Major Phytochemicals	Role in Infertility Management
23	**Karuvelam(root)**	Acacia nilotica	Polyphenols	Astringent; strengthens the cervix and supports implantation.[57,58]
24	**Panai Vellam**	Borassus flabellifer	Iron, B-vitamins	Combats anemia, a leading cause of amenorrhea.[59]
25	**60**	Bos indicus	CLA, Butyric acid	Bio-enhancer; nourishes the oocyte.[60]
26	**Maangkottai**	Mangifera indica	Mangiferin, Fatty acids	Uterine tonic; reduces leucorrhea.[61]
27	**Murungai vidhai**	Moringa oleifera	Quercetin, Vitamin C	High antioxidant load; reverses DNA fragmentation in sperm.[62]
28	**Munthiri**	Anacardium occidentale	Zinc, Healthy fats	Essential for testosterone synthesis and oocyte quality.[63]

2. Results and Discussion

The therapeutic efficacy of **Kaya Karpam** in treating infertility is not derived from isolated pharmacological action but through a synergistic "Bio-Psycho-Physical" triad. At the structural level, yogic interventions—specifically Sarvangasana and Badha Konasana—function as mechanical catalysts that enhance pelvic microcirculation[64] and modulate thyroid-ovarian axis feedback. This physical foundation is further stabilized by **Pranayamam** (respiratory regulation), which shifts the nervous system from a sympathetic "fight or flight" state to a parasympathetic "rest and digest" state[65]. By mitigating chronic sympathetic dominance, these practices effectively lower systemic cortisol—a known antagonist of the **Gonadotropin-Releasing Hormone (GnRH)** pulse—thereby restoring the rhythmic hormonal signaling essential for ovulation and spermatogenesis.

The pharmacological analysis identifies three primary pathways of action. First, a robust **antioxidant defense** is established by phytochemicals like **withanolides** and **quercetin**, which scavenge Reactive Oxygen Species (ROS) to safeguard gamete DNA integrity. Second, **metabolic modulation** is achieved through insulin-sensitizing agents like Aloe vera, which rectify the hyperinsulinemia-driven androgen excess typical of PCOS. Third, the utilization of **Pasu Nei (Ghee)** as a lipophilic carrier ensures that these bioactive compounds bypass first-pass metabolism and achieve high bio-availability within the gonadal tissues.

Furthermore, the clinical success of this regimen is strictly predicated on **Pathyam[66]** (disciplined lifestyle). The avoidance of "Pitham-inducing" stimulants—such as tobacco, alcohol, and excessive heat—is critical to preventing thermal degradation of the Sukira Dhathu. Similarly, the regulation of **Apana Vayu** (the downward-moving vital force) through the avoidance of daytime sleep and the suppression of

natural urges ensures that the reproductive "field" remains energetically and physiologically receptive to conception.

3. Conclusion

Siddha KayaKarpam offers a robust, evidence-based alternative for infertility management. By combining metabolic correction, detoxification, Yoga, and Pranayamam, it addresses the root cause of reproductive failure. To achieve success, the patient must adhere to the Pathyam(prescribed habits) to allow the Karpam medicines to fortify the body effectively.

4. Aknowledgement

We are deeply thankful for our principal mam and faculties of Nandha Siddha Medical College and Hospital, Erode, for providing the academic support and resources necessary to carry out this study.

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