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PROGRESS OR RELAPSE? PREDICTING THE COURSE OF TRADITIONAL MEDICINE IN SRI LANKA

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Abstract: Considering the global efforts of the World Health Organization (WHO) to revive indigenous medicine systems, this paper investigates how attempts to rejuvenate indigenous medicine have transpired in Sri Lanka. I review the concerns of *parampara* (lineage) indigenous medicine practitioners in their efforts to secure herbs, and I interrogate the role of the Sri Lankan government, herbal manufacturing companies, and tourism industry in making those efforts problematic. By calibrating, assessing, analyzing, and verifying various data, my principal aim is to demonstrate the disjunction between the priorities of the Sri Lankan government on the one hand and *parampara* indigenous medicine practitioners on the other. My major contention is that the lack of coordinated endeavors between these two factions has been detrimental for the continued survival of herbal species and herbal medicinal knowledge.

Keywords: Indigenous medicine, *parampara* practitioners, herbal medicine, ayurveda, agrochemicals, tourism.

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Introduction

Sri Lanka, with its unique location in the Indian Ocean, possesses a rich variety of ecosystems to support the practice of traditional medicine in its various forms. These are known as ayurveda, siddha, unani, and desiya, which were sustained for centuries well into the 19th century until western or bio medicine, with its technical advances and state support, was introduced. These traditional forms of medicine now go by the label of "indigenous medicine," and have continued to survive with or without state patronage. In the early 20th century, however, the initiatives of a group of enthusiastic elite nationalists resulted in the

government extending formal but very modest support to indigenous medicine for training, study, and research. In 1978, the World Health Organization (WHO) resolved to rejuvenate indigenous forms of treatments globally with the aim to serve them as alternatives to biomedicine and to make them part of its aspiration to provide health care to all. If not an immediate policy change, this decision did enhance awareness of indigenous forms of medicine among the member nations and their citizens, especially those in the West searching for alternatives to biomedicine. This recognition was boosted in 2008, with the WHO reiterating its commitment to promoting indigenous medicine. Since then, an obvious sign of this has been felt in Sri Lanka with a growing number of shops selling herbs and herbal products, with tourist luxury hotels offering herbal massages and baths under the brand name of ayurveda. The Ministry of Indigenous Medicine and the Sri Lanka Tourist Board, whose intention is to promote medical tourism, interpret this as a progress for indigenous medicine. However, my conversations with *parampara* (hereditary/lineage) physicians practicing indigenous medicine provides an alternative picture. Considering these two different but parallel views arising from different vantage points, I investigate the sources that contribute to this divide with a focus on the way herbs and herbal medicines are employed by these two groups and how this leads to friction.

Methodology

Indigenous medicine is often called "herbal medicine" reflecting the crucial role of herbs in these medicinal systems. Specific forms of indigenous medicine are known as herbal medicines because of their primary reliance on herbs. Sri Lanka's *desiya,* or local form, falls into this category. *Desiya*, like other traditional forms of medicine in Sri Lanka, often goes by the label "ayurveda" mainly because it relies on the concepts of ayurveda in understanding and treating human bodies. At the same time, ayurveda practitioners in Sri Lanka employ locally available herbs to make their specific family mixtures, the efficacy of which has been tested for generations. Considering these factors, I interviewed a sample of *parampara* indigenous medicine practitioners hailing from different parts of Sri Lanka to garner their opinions about the status of indigenous medicine and their place within the context of using herbs as medicine.

To contextualize my conversations with the *parampara* indigenous medicine practitioners, the results of the initiatives made by the World Health Organization, and to get an assessment of the Sri Lanka government's policies and aims regarding herbs, I have perused reports of the WHO, the Ministry

of Health in Sri Lanka, the World Bank, the International Trade Center (ITC), and the Sri Lanka Tourist Board. I will also take a step back to gain a larger perspective of the issues by briefly examining the form of indigenous medicine that was brought under state control.

Context

Sri Lanka has been known for the pluralism of its healthcare systems for as long as historical records show. It is standard for most Sri Lankans to use different healing methods simultaneously to treat their illnesses. When Western medicine was introduced, theoretically, it only added one more layer to the multitude of healing systems prevalent in Sri Lanka. But practically, the introduction of western medicine brought sweeping changes affecting drastically the landscape of indigenous medical systems. Updated by the knowledge of the microbial causes of epidemics, western medicine became a boon to the British colonial empire to undertake preventive programs among the public and showcase these efforts to solidify their hegemonic rule. While crediting the British for their paternal care, a group of western-educated intellectuals[2]joined by many, formed a society to get some state support for indigenous medicine that was still serving 75% of Sri Lankans. Their efforts resulted in setting up an ayurveda hospital and a college to provide degrees and support research. To counter the colonial government's criticism of indigenous medicine as outdated and superstitious and make it competitive to biomedicine, they purged all aspects of magico-religious healing methods and put forward a curriculum for indigenous medicine that included Western anatomy and pharmacology.[3] These revival efforts, although well-intentioned, not only compromised the essence of indigenous systems but also eliminated any possibility of official status then or later for many healing traditions that relied on religion and ritual.

In its report of the 1978 meeting at Alma Ata, the WHO reported that as many as 70% of Sri Lankan populations used the services of these practitioners. This percentage only takes into account those patients who visited registered practitioners.[4] Field studies, including mine, show that there are still quite a few unregistered indigenous practitioners.[5] Official or unofficial, as long as a practitioner is efficient in her/his treatment, patients do not seem to worry about the credentials of that practitioner. In rural areas, the name of the *parampara* carries greater weight than the official status. Furthermore, in most cases, these medical practices are not for profit and hence not illegal, even according to the definition laid out in the Ayurveda Act of Part VII and chapter 72.[6]

In any case, indigenous medicine continued to serve most of the population throughout colonial times and later. The Portuguese and Dutch also consulted those indigenous practitioners who used herbal medicines to cure ailments. The Dutch not only employed these practitioners to treat their army but encouraged them to assist their doctors in studying and publishing native pharmacopeia.[7] Dutch doctors occasionally sent herbs samples to Holland to raise them in Holland's botanical gardens. Even when biomedicine made further advances and enjoyed dominant status under the British, a couple of British doctors studied herbs' medicinal properties.[8] By this time, British doctors in India, like the Dutch in Sri Lanka, apprenticed under local practitioners and gained knowledge about herbal medicines and their medical properties.[9] Europeans learning about herbal properties and employing them to prepare pharmaceutical biomedicines dates to this time.[10]

The important role of herbs, even in biomedicine, was not taken into the equation by the early revivalists when they modernized indigenous medicine. Their endeavors did not take the intended route – as they produced generations of indigenous medical professionals exhibiting little or no knowledge of indigenous pharmacopeia. Several field studies on indigenous practitioners in the late 1980s and '90s, such as that of Ivan Wolfers, Mark Nichter, Carolyn Nordstrom, Nancy Waxler-Morrison, and Kamalika Pieris, revealed these indigenous physicians resorting to Western medicine to treat patients.[11] While this shows the knowledge of those who secured degrees within a government-approved curriculum, indigenous medicine in traditional form is still practiced by some who were trained and apprenticed under their parents or family members or a Buddhist monk. Studies representing these practitioners reveal different issues, such as the government's paltry budget allocation to Ayurvedic medicine, fewer indigenous medical colleges with scant resources, and low-quality training, producing physicians inadequate to practice either modern or indigenous forms of medicine.[12] Another study of the same nature locates the problem to the government adopting a bio-medical framework to promote indigenous medicine.[13]Agreeing with this is a relatively recent study that is critical of the government for discouraging indigenous forms of treatment at the expense of ayurveda learning.[14]While my study echoes some of these concerns, I will also demonstrate how there is also a lack of endeavor to involve *parampara* practitioners in the revitalization process of indigenous medicine.

I have collected responses from a sample that includes 52 *parampara* practitioners from 12 districts (39 male +12 female) of Ampara (5 male +0 female), Anuradhapura (1 male +1 female), Batticaloa (2 male +1 female), Galle

(5 male +2 female), Gampaha (2 male +1 female), Jaffna (6 male +1 female), Kandy (4 male +1 female), Kegalle (2 male +1 female), Kurunegala (1male +1 female), Matale (4 male +1 female), Monaragala (4 male +0 female), and Vavuniya (2 male +2 female) covering the regions of east, north, northwest, west, central and south of the island. In addition to their *parampara* training, most possess official credentials ranging from Ph.D. (1), bachelor's degrees (12), diplomas (12), registrations (22), and unregistered (5). They constitute Buddhists speaking Sinhala, Hindus, and Muslims speaking Tamil. The ages of these practitioners range from 34 to 88 years, with the majority falling between 45 and 70. Regardless of their ages and religious backgrounds, some employ *yantra*s (charmed amulets) and *mantra*s (chanting invocations to invoke deities for specific purposes), and others do not. Their economic situations are determined mainly by their location: those who practice in remote rural villages with a little patch of land live on modest means just like the rest of the villagers, while larger and prosperous villages have affluent practitioners owning more farmlands and some even leading the villages as headmen. The number of *parampara* practitioners is higher in areas like Batticaloa and Monaragala, probably due to the scant presence of biomedicine physicians.

Although relatively small, the island's diverse geographical features and environments promote vegetation unique to each locale. These features encouraged *parampara* practitioners to develop medicines and treatment methods, employing locally available resources such as flora, fauna, and minerals. Some specialized treatments are guarded as family secrets and passed only through *parampara*. While this insulates empirical knowledge acquired over many generations, the *gurukula* (the tradition of young practitioners learning not just from their family members but quite often apprenticing under other *parampara* practitioners or a monk-scholar) system enables physicians to learn from each other and to enrich their skills. So, even when they identify their treatment as either ayurveda, desiya, siddha or unani, it is often a combination of more than one type. Some practice *sarvanga* (general medicine) and others specialize in one or more of the following: *handi* (rheumatism and other joint pains), *kedum bidum* (broken bones), *charma roga* (skin diseases), *lama/bala roga* (pediatrics), *stri roga* (female menstruation pains, pregnancy, childbirth, infertility etc.), *visha vidya* (treatment for poison including snakebites), *jalabhithikawa* (hydrophobia), *vata* (paralysis and other *vata* related troubles), *gedi* (abscesses), *manasika roga* (mental illness), *dandamala* (cancer), *sangamalaya* (hepatitis), and *deum pilissum* (cuts and burns). To practice each of these specializations, practitioners need to prove their qualification, although

small village *vederala*s (*desiya parampara* practitioners) treating patients free of charge from home do not seem to worry about registering.

Parampara practitioners are also divergent in other ways. In remote villages, in almost all cases, there is no practice of charging patients even if they live on a subsistence economy basis. Prosperous *parampara* practitioners who head villages or whose families have earned an excellent reputation for their treatment follow family treatment methods even after earning diplomas or degrees in indigenous medicine. Ancestors of some *parampara* practitioners have run very busy practices and made medicines in more significant quantities with the aid of several employees. These *parampara* practitioners charge patients to cover the costs of making medicine. Making medicines can be expensive, as the ingredients sometimes include imported valuable items from places like India. Some minerals associated with Siddha include precious stones or rare animal products. Some *parampara* practitioners grow herbs in their gardens, others gather herbs from the wilderness, and others get herbs from other parts of the island through patients, friends, and distributors. Some *parampara* practitioners supplement their incomes by selling herbs from their gardens or buying them from companies like Pasyala, Morawaka, Link and then retailing them.

Through the Eyes of Indigenous Medicine *Parampara* Practitioners.

In my interviews, some *parampara* practitioners spoke to me directly in English. Others spoke Sinhala or Tamil, in which case we conversed with the help of translators. All the conversations have been recorded, transcribed, and translated. The subject matter is the issue related to securing herbs. In calibrating this interview material, I noticed, not surprisingly, that the majority have responded similarly to similar questions. The difference, however, is that some *parampara* practitioners were more eloquent than others; some gave different perspectives, and others added new points specific to their location and circumstances. In synthesis, their responses bring richness and complexity to the issues explored here. Many issues involve the government directly, while others are less direct. I have organized the information under three main categories identifying the leading cause for their concerns but otherwise, they overlap each other. Unless attributed to particular *parampara* practitioners, the concerns mentioned were expressed by most of my interlocutors.

I. Public Awareness

As many studies show, for various obvious and not-so-obvious reasons, most Sri Lankans prefer biomedicine.[15]As the popularity of biomedicine has

increased over the last century or so with the convenience of buying pills for general illnesses in nearby *kade*s (small shops), common knowledge that prevailed about herbal treatments for these illnesses has become a rarity. But for *parampara* practitioners, the knowledge of herbs directly correlates to their professional capabilities, and hence many practitioners hold them sacred. When praised for their curative skills, their humble expression attributes it to "the power of the herbs".[16]With rapidly changing circumstances, securing herbs in their neighborhoods is not as easy as it was in the past.

One of the reasons for the increasing scarcity of herbs involves how population growth and land pressures have led nuclear families to build more houses on smaller plots without back or front yards. A common feature in both rural and urban areas of Sri Lanka is the division of the house sites of family inheritance to accommodate increasing numbers of family members. This phenomenon has reduced green patches where herbs grow. A 66-year-old *parampara* practitioner from Galle District reflects, "Now unless we keep our gardens, we can't find herbs in our surroundings."A *parampara* practitioner from the Monaragala district offered a similar response but within the context of his neighborhood where houses formerly were sprinkled among jungle shrubs, but now, with increasing population density, all open spaces are filled with new houses.

Sharing the same sentiment with a different twist, a *parampara* couple from Gampaha District noted that in the past, extended families lived in extensive gardens with backyards. And these houses were spaced out with vacant spaces where herbs could grow. This scene has now been replaced by an increasing number of nuclear families building homes on 10 perches of land (1 perch = 5 and 1/2 yards) with no space to grow plants. Vacant spaces holding herbs are nowhere to find.

In urban areas, population growth took a different dimension of threatening the survival of some herbal species. A *parampara* practitioner from Kandy expressed his distress for not being able to find herbs such as *nerenchi* (tribulus terrestris) that were common in his childhood.

As unused public lands are quickly disappearing, people's knowledge of herbs, even farmers, is diminishing. A *parampara* practitioner from Trincomalee district spelled out this issue succinctly, "Herbs are our life, but people do not understand this truth." Many *parampara* practitioners above 40 years of age complained about the growing ignorance of identifying herbs among younger generations. Unlike older generations who either brought herbs to the practitioner or gave them the location of certain herbs, the current

generation of patients, sadly, as the practitioners observed, cannot identify any herbal plant.

As such, practitioners cannot rely on patients' cooperation either to help them to secure or to care for herbal plants. So, not surprisingly, an elderly *parampara* practitioner from Kandy is depressed watching the modern generation, destroying herbs in their gardens and backyards by mistaking them for weeds.

This ignorance is extended even to the younger generation of farmers, according to a *parampara* practitioner from Anuradhapura, where farming remains the mainstay. He was astonished at these farmers' need for knowledge and understanding about plants except for the main crop they grow. In the past, he said, if a practitioner couldn't find a particular herb, there were enough farmers in the village to help secure it or give the exact location of a particular plant.

The introduction of pesticides brought a dramatic change in Sri Lanka's ecology. Collectively, *parampara* practitioners complain about the lack of a control or monitoring system for importing and using agrochemicals. They lament that pesticides such as Roundup, Harcross, and Gramoxon are being used without understanding their side effects. These pesticides, they point out, have destroyed important herbs in paddy fields and contaminated water, water plants, and fauna.

For example, a *parampara* practitioner from Anuradhapura mentioned the fate of an herb called *kalanduru* (cyperus rotundus) which he called a divine medicine as it fights against bacteria and viruses like Salmonella that cause diarrhea. Farmers sprayed pesticides instead of pulling the plants by their roots, killing not just the living plants but also the entire generation of future plants. In the same way, he mentioned another herb called *kalanduru* that used to grow everywhere by sidewalks, but now is nowhere to be found. A *parampara* practitioner and specialist in treating diabetes in Vavuniya lamented over not finding an herb called *pitawakka* (Phyllanthus debilis) that is crucial in controlling blood sugar levels in the human body. *Pitawakka,* also served as bird food, was commonly available.

A second *parampara* practitioner from Anuradhapura stopped gathering herbs in his area knowing that they had been exposed to chemicals. Instead, he goes to places like Kurunegala or Kandy, searching for herbs and inquiring about whether those areas are chemical-free. Without these inquiries, he states that collecting herbs exposed to chemicals is dangerous, especially if they grow in contaminated water. This is another reason why he does not assign

the collection of herbs to helpers, as was done in the past by his father and grandfather.

Many reported that the government itself uses pesticides liberally to control weeds growing on rail tracks, pavements, and highways, which are also areas where practitioners collect herbs.

Because of the hazards involved in collecting herbs, one of the *parampara* practitioners from Ampara announced that he had given up gathering herbs and making medicines. He opines that the chemicals have spread everywhere, including the medicines sold in the pharmacy. He believes some sellers even add chemicals to keep the medicine longer. So, he started ordering his medicines only from a particular company in India. Another *parampara* practitioner in the same district admitted that he faced such difficulty securing proper herbs that he switched his treatment to *yantra mantra* (charmed amulets and chants) and astrology.

This portrays a grim picture. In the long run, the use of agrochemicals, as many of the practitioners observed, would end their profession. Equally damaging to indigenous medicine and everybody on the globe is environmental pollution. As a leading and knowledgeable *parampara* practitioner like Seela Fernando advised, even preserving herbs in plastic bags alters the composition of herbs.[17]Going by this, one can imagine the effects of agrochemicals on herbs.

II. Government's Lack of Planning

The majority of *parampara* practitioners depended on jungles for their medicine. According to ayurveda texts, "a wild plant is always better than a cultivated plant".[18]Some practitioners who pick their herbs in the forest do so only after following certain rituals to express their utmost respect to the plants/bushes/trees that they harvest for their herbs. As recently as 2002, a survey indicated that 50% of the medicinal plants in Sri Lanka come from natural forests.[19]This shows the significance of forest cover to the professions of the *parampara* practitioners. Unfortunately, the jungle is getting thinner and thinner making the *parampara* practitioners walk longer and harder to search for herbs.

The plantation sector plays a dominant role in the Sri Lankan economy. Often, this means the reduction of the jungle, which was emphatically mentioned by a *parampara* practitioner from Monaragala in the Eastern Province. Clearing the jungle for the rubber plantations, he says, dissipated herbs like *Bimkohomba* (munronia pinnata), *aswenna* (alysicarpus ovalifolius), *visnukranthi* (dwarf morning glory), and *gokatu* (*tribulus terristris*) that are crucial for his medicinal preparations. The rubber plantations were developed

and maintained by the government. A recent newspaper article carried an interview with the minister of plantation industries who broadcasted that Sri Lanka will be made the "rubber hub of South Asia".[20] As part of enhancing productivity, he says the government "will move rubber away from traditional wet regions to non-traditional areas so that tapping is not affected by rain." This non-traditional area he refers to is the jungle that lies in the Eastern Province, and this is contributing to the woes of *parampara* practitioners.

The plantation economy was introduced by the British in the middle of the 19th century when most of the forest land came to be used in the upcountry, except for patches of jungle and some reserves.[21]The changed landscape resulted in the loss of countless species endemic to Sri Lanka, which still needed to be recorded. This has also affected the rainfall distribution leading to different sub-climates. Even so, a study on hot-spot areas of the world states that Sri Lanka possessed "forest cover in more than 50 percent of its expanse as recently as 1950."[22] But this has decreased considerably since then. Currently, the Sinharaja Forest in the south of the island is the only major reserve left, hosting 75 percent of endemic trees. Although the forest is identified as a UN World Heritage site, it is constantly being exploited by people and companies residing in the vicinity.

While this is the situation with the remaining forest, patches of the jungle (the secondary forest areas) are also threatened. Since the 19th century, population growth and demands for resources such as farmlands and housing needs reduced forest cover further and faster. Adding to this is the government's lack of vision when undertaking housing and other projects.

Sites for these housing projects are often chosen in the wrong places, such as elephant' crossings, leading to elephant/human conflicts. This is because the decisions are made at the official level without involving local people. Once the site is chosen, the contractor clears all vegetation, and the space around each house is paved with cement to drain water. This makes even an hour of rain in these colonies dangerous, as water flows directly from roofs to gutters and concrete channels before creating floods in the lowlands. These floods damage herbs and crops by washing away the nutritious topsoil. As there is no space to collect water within the housing premises, groundwater levels go down in these housing colonies and wells are without water. So, these housing colonies are not only bare without any place to grow herbs, as noted by several practitioners, but they proved to be environmental disasters.

To control dengue fever, an illness rampant in some wet areas of Sri Lanka, the Ministry of Health removed the sources, such as thick vegetation with

dried leaves from which mosquito larvae grow. So, sanitation workers must periodically remove all vegetation in public spaces and abandoned areas. They also inspect residents' yards, gardens, and gutters to ensure they are clean and well-drained. The workers issued warnings and fines if they did not find yards to their satisfaction. So, to impress the workers, people uproot various herbs and cut bushes and branches of trees in their yards that otherwise yield herbs. This situation has made it difficult for *parampara* practitioners who collected herbs on the roadside or in neighbors' yards.

Another government undertaking that has hurt the practice of *parampara* practitioners is the importation of herbal fruits and plants. Almost all imported herbal plants are genetically modified, preventing *parampara* practitioners from propagating herbal plants in their backyards. Even commonly grown herbs like *mallum* such as *gotukola* (*hydrocotyle asiatica*), *mukunuwenna* (*alternanthera sessilis*) are genetically modified hindering the practitioners' efforts to grow any herbs of consequence.

There are also restrictions on securing *ganja* (cannabis) and *abeen* (opium) to make medicines. Although *ganja* and *abeen* are technically herbs and are important to prepare many herbal medicines, *parampara* practitioners are not allowed to grow them. They require permission from the Ministry of Health to acquire them. Almost all the *parampara* practitioners expressed their chagrin at the tedious bureaucracy of getting permission. Some *parampara* practitioners achieved some success through their *Samrakshana Sabha* (regional associations for *parampara* practitioners). Even after getting a permit, scarcity prevented them in getting a hold of the ingredients. The scarcity also led the government to reduce the quota each year so much so that it is impossible to have adequate quantity in hand to prepare any medicine. After all these hardships, if the *parampara* practitioners were able to receive these paltry sums of herbs, the police would watch them closely as though they were criminals. To avoid these difficulties, some *parampara* practitioners attempted to substitute these ingredients. One version of substitution as explained by a *parampara* practitioner from the Ampara district, is as follows:

> We substitute for *ganja* with herbs like *sadhakuppa* or *kalanji* or *madhumaththu* (dill) (*anethum graveolens*). For example, eight portions of *sadhakuppa* equals to one portion of *ganja* in its efficacy. We replace *abeen* with the herb called white *kasakasa* (poppy). We take the milk from its seed. The substitute has its dangers. If it is overdosed, it will lead to mental disorders. While preparing these medicines, cleaning the herbs takes a major role. There are several different procedures to clean each herbal variety.

An incident of police setting fire to 40 *ganja* plantations grown in 19 ¾ acres by destitute farmers in the villages of Thanamalwila and Hambegamuwa in Monaragala district was reported in 2013.[23] The poor farmers were remanded. One of the *parampara* practitioners in the vicinity commented that wasting *ganja* and punishing poor growers does not serve anybody's purpose, while some farmers with connections to politicians manage to conduct underground operations in the *ganja* trade.

There are some herbal medications to treat dengue fever, a disease that has rampant at times leading to the island's hospitals overflowing with patients. The severity of dengue has posed severe challenges to biomedicine doctors as patients with dengue have needed hospitalization and blood transfusions. When hospital beds were full of dengue patients and waitlists overflowing, *parampara* practitioners cured some of those in waiting using the extract of papaya (*carica papaya*) leaves. One of the several kinds of research determining its efficacy researches was published in 2011 and says the following:

> From the patient feelings and blood reports, it showed that *carica papaya* leaves aqueous extract exhibited potential activity against Dengue fever. Furthermore, the different parts of this valuable species can be further used as a strong natural candidate against viral diseases.[24]

This was published eight years ago. Even so, when dengue was declared as an epidemic, the government showed very little enthusiasm to either use the services of *parampara* practitioners or to get the word out about the papaya extract to patients.

Instead, the government exhibited almost sheer hostility in making public announcements to warn people not to take indigenous medicines such as *rathakalka* used to prevent worms for infants. Practitioners suggest that if the government doubts the efficacy of the medicine, it should conduct research, and only if the results are satisfactory should it commit to its promotion. Instead, the government's dismissive attitude only makes *parampara* practitioners worthless in the public's eye.

One more example of the government's hostility to indigenous medicine is related to bug repellents. Even though there is a growing interest in herbal bug repellents, the Sri Lankan government has not given any support to the plant-based mosquito repellents that practitioners recommend. Instead of encouraging local herbal products, which are cheaper and harmless, the government actively promotes chemically based items.

There are some promotional programs in which the government involved *parampara* practitioners. A couple of them, the *Hela Veda Gedara* and *Vedagama*,

both aimed at growing herbal plants, that have ended in a showdown with the government.[25]Others, such as community healthcare and inter-generational practices of healing some were just pilot programs others have resulted in failures.[26]

III. Small Practices Vs. Big Companies

Adding to the above factors is the Sri Lankan government's allowing big companies to secure and market herbs in any way. This has become something of a final blow to *parampara* practitioners in the following ways.

Trees are not just trees. They produce herbs. Most *parampara* practitioners report that companies such as the Siddhalepa Group are involved in selling and manufacturing herbs and herbal products by securing herbs in bulk through contractors who do not care about the quality of herbs or the devastation they inflict on the environment in procuring them.

One of the Monaragala *parampara* practitioners who lives close to the jungle says: "Unlike my father, I have a difficult time finding herbs like *senehe kola* (*cassia senna*) in the jungle. Instead of picking leaves of these herbs, the contractors uproot these plants and sell them in bulk." Generally, these leaves last only a few months and will be defunct in potency when they reach the market. It is not just the herbs; practitioner also faces difficulty in gathering any herbal fruits in the jungle such as *nelli* (*phyllanthus embelica*), *aralu* (*terminalia chebula*), and *bulu* (*terminalia bellerica*) as their branches, along with the fruits are cut by the contractors. He took me with him to show the bare trunks of trees. He thought that the trees would either die in distress or take many years before they bear fruits again.

A *parampara* practitioner from Kurunegala district explained to me the amount of destruction that contractors are causing,

> To make *neelayadi* oil, precious herbs like *wetake* (*pandanus tectorius*), *hathavariya* (*asparagus gonoclados*), *ankenda* (*acronychia pedunculata*), etc., are needed. The Hettigoda Industry, which is part of the Siddhalepa Group of Companies, produces 15,000 gallons of *neelayadi* oil per month. Can you imagine the amounts of precious herbs required to do this? This is the reason why contractors, instead of collecting leaves, uproot small plants and cut whole branches off of big trees. This kind of overharvesting cannot be sustained for a long time. As it is, I doubt the quality of their oil. In any case, the future scenario is no herbs and no real medicine.

These types of conversations reflect how these herbal companies' greed might lead to certain species' extinction. How can companies like the Siddhalepa

Group send their contractors to secure herbs in bulk when the Department of Wildlife Conservation's Fauna and Flora Protection Ordinance precludes damaging any plants or trees in the forest area?[27] A news item about illegal exports of a medicinal plant gives us a sense of the laxity of implementing regulations. One of the conservators of the forest, pleading anonymity, reported that he detected a consignment of a banned herb called *kothala himbutu* (*luffa acutangular*) that is endemic to Sri Lanka, being exported to Japan.[28] The same news item reports that some 30 patents involving this plant were obtained by overseas companies and one lone Sri Lankan company – the Siddhalepa Group. So, the culprit is not just the Siddhalepa but also foreign companies. It will not be a surprise if *kothala himbutu* will be extinct soon.

Some ex-government officials, such as one of the former Deputy Director of Customs, have begun to speak out about abuses of this type. In 2015, he said:

> "Much of our endemic species were endangered since 1981, and smuggling activities increased, threatening vast resources in biodiversity. The need for a mechanism to protect our national resources was of paramount interest."[29] A major deficiency, however, is not having a clear knowledge of the variety of plants in Sri Lanka, as a report published by the Ministry of Environment admits:
>
> …one of the biggest drawbacks in conserving the biodiversity of Sri Lanka is the lack of knowledge about what we have. This state of affairs has arisen mainly due to lack of trained taxonomists as well as lack of initiative to explore the biodiversity of the country. The state agencies that are responsible for carrying out these activities have failed to address this issue appreciably due to funding constraints as well as lack of a clear leadership to achieve this daunting task."[30]

This study spells out two important issues, funding constraints and lack of leadership which can also be labeled as a lack of vision and motivation.
Several *parampara* practitioners buy ingredients either to add to their herbs or buy the herbs that are not available in their surroundings. In the past, when herbs were not in high demand, this worked out very well, as *kade*s, through companies like Morakuwa, Pasyala, and Link, gathered herbs from other parts of the island and India and received their supply. But in the changed scenario, the *kade*s cannot procure some varieties, and when they manage to get them, they do not have the same quality as before as they are often old and expired. The *kade*s stopped carrying herbs like *nerenchi* or *gokatu* (*tribulus terristris*) and *rasakinda* (*tinospora cordifolia*) but try to replace them with a herb with very different properties.

The shortage of herbs itself is at least two decades old, as mentioned in Higuchi's study, "the quantity of herbal leaves in supply had decreased as

a result of deforestation for agricultural and residential purposes."[31] But the recent role of herbal companies added extra stress on herbal resources. In the words of a native botanist, Wijesundara,

> Since most of the domestic supply for plants is from the wild, this has led to over harvesting of wild populations of species. In addition, increased demand for agricultural land and unsustainable cultivation practices such as shifting cultivation and "chena" or slash and burn cultivation destroy habitats of medicinal plants.[32]

According to one of the *parampara* practitioners in Gampaha district, there is a "modern" competition from these herbal companies. He used the term "modern" to differentiate this competition from the ongoing competition with biomedicine. Unlike biomedicine, which has its basis in Western ideas, this new competition takes strength from promoting indigenous medicine. This competition arose as part of promoting indigenous medicine in its traditional setting to recruit the *parampara* practitioners allegedly to be part of the public health programs but actually to make it part of the tourist industry. This is being done deliberately.

An article published in 2014 by the *Economist* forecasting the rise of costs for primary care, gives tips not so much to integrate indigenous medicine into the public health system, as has been suggested by the World Health Organization (WHO) as a way to cut nation's costs in public health, but instead using indigenous medicine to bring foreign currency: "With the island's rich tradition of ayurvedic medicine and the government's focus on boosting overall tourism numbers, hospitals specializing in traditional medicine could increase their revenue by catering to tourists interested in alternative medicine."[33]

Along the same lines, more elaborate tips were recommended by the International Trade Center (ITC) to take Sri Lanka's medical tourism to a higher level by providing "accredited certificates and proof of training" to Sri Lankan tourist resorts in ayurveda and allotting more research funds to increase the nation's exports of "ayurveda wellness products and herbal tablets as well as open the possibility of exporting 'hard or curative drugs' based on Ayurveda."[34]

The Sri Lankan Tourism website's home page provides an elaborate list of products sold in star-class and boutique hotels and luxury villas, including "specialized instructors and trained staff (offering)… Ayurveda body massages, Ayurveda steam baths and … herbal baths."[35]

While there is nothing wrong about promoting tourism or offering Ayurveda products to foreigners, a question remains: why does the government

not involve *parampara* practitioners in promoting tourism or plan to induct them into primary health care?

Studies show that, except for a small percentage, most *parampara* practitioners have yet to be included in the tourist industry initiatives.[36] It is the companies that benefit by mass-producing medicines and advertising the efficacy of their medicines on radio and TV. One of the Gampaha *parampara* practitioners said he would accept the manufactured medicines if these companies sold quality products. However, he suspects that 90 percent of their herbal products advertised on social media contain chemicals. To bring his point home, he gave an example:

> The producer of a balm called "Siddhalepa", which is popular in the country, poses as a *vedamahaththaya* (*parampara* practitioner), but he is just a businessman. He went to India, learned to make this product and started producing and distributing in Sri Lanka. His advertisement claims that the recipe for the balm is coming from the Kandyan Kings' time. Like 90% of the medicines, this is fake, and the man is fake but never mind",

the practitioner says, "everybody is convinced by his claims and the convenience of readily available medicine. So, the balm is all over Sri Lanka stores, like a weed."

Even if the herbs are chemically free, as one of the *parampara* practitioners from Batticaloa district opines, their mass production by steel machines, and elapsed time makes the medicines lose their potency. Not only does this seem to be common knowledge among *parampara* practitioners in my study, but it is also substantiated by other studies.[37]

Not trusting the factory-made medicines, a *parampara* practitioner from Kandy uses a recipe mentioned in a palm leaf manuscript and takes great pains in securing ingredients. With his teacher-monk, he prepared an oil called *jeevaraja thilaya* to treat leucoedema. There are greater difficulties with other medicines, he explains. One is *visha gala,* used to treat patients affected by poison but not available in the market anymore. So, he has been attempting to make his *visha gala* for the last three years. So far, he has found three kinds of *pashana* (poison) and other very rare herbs like *thikta labu* (*lagenaria siceraria*) and *thikta wetakolu* (bitter ridge guard). He needs the rest of the ingredients and knows the Ministry can secure these ingredients. Considering he lacks clout with the Ministry of Indigenous Medicine, he is not holding up his hopes.

The Ministry, however, has bigger plans. Since there is a push to increase Sri Lanka's share in the global herbal market by maintaining quality and adopting good laboratory and manufacturing practices, the Ayurveda Drug

Corporation is in business to export the medicines that these companies, like Siddhalepa Group, produce.[38]

A research survey on the trend of reemerging interest in herbal medicines, observes this paradigm:

> Despite the increasing use of medicinal plants, their future, seemingly, is being threatened by complacency concerning their conservation. Reserves of herbs and stocks of medicinal plants in developing countries are diminishing and in danger of extinction as a result of growing trade demands for cheaper healthcare products and new plant-based therapeutic markets in preference to more expensive target-specific drugs and biopharmaceuticals.[39]

The extinct numbers of plants are known from a report published in 2008 recording 1432 medicinal plants, out of which 110 are threatened.[40] Among the surviving, 148 species are identified as endemic, out of which 61 species are threatened. This shows the serious nature of the status of herbs endemic to Sri Lanka. These facts do not seem to be on the Ministry of Indigenous Medicine website.

There is a worldwide effort to conserve medicinal plants and use them sustainably. As part of this, in June 1998, for five years, a project valued at US$5.07 million was initiated by the Global Environment Facility (GEF) to conserve globally and nationally significant medicinal plant species in Sri Lanka.[41] The project achieved sustainable harvesting levels only for five species because of the limited time. It also has introduced some commercial cultivation of medicinal plants. However, because of the inconsistency in participation and collaboration of local government officials and agencies, it had "unqualified success" in areas such as 1) promoting greater efficiency and innovation in producing indigenous medicine and 2) reviving and expanding *gurukula* (apprenticing under knowledgeable *parampara* practitioners) system. My conversations with the practitioners revealed that they were not approached by the government agents.

Conclusions

Synthesizing the narratives of *parampara* practitioners and perusing reports of various organizations results in the following conclusions.

1. While the population density minimizing green space is a vexing problem for which even advanced nations are struggling, growing public ignorance of herbs is of concern in Sri Lanka, where many people still use indigenous medicine. While it is commendable that global agencies such as the GEF help promote medicinal plant species

in Sri Lanka, it is crucial that the government develop strategies to work with the public effectively.

2. Lack of coordination and consultation among several government departments in planning and executing projects such as housing development or enforcing regulations to prevent logging and stealing precious products from the forest reserve or importing agrochemicals and biomedical drugs, including insect repellents. Because most government projects are executed top-down, there is a little incentive in consulting local populations or *parampara* practitioners while implementing housing and other projects.
3. The Ministry of Indigenous Medicine on its website takes pride that "all necessary Ayurveda drugs are produced by the Sri Lankan Ayurvedic drugs corporation".[42] This air of self-sufficiency in handling indigenous medicine probably exhibits the Ministry's little to no concern about the issues that practitioners raised in my interviews. The Ministry's public denouncement of certain preparations such as *rathakalka* and its reluctance to employ *parampara* practitioners to treat epidemics like dengue certainly serve as examples of its low regard of *parampara* practitioners. This is further evident in the way the Ministry precluded mentioning *parampara* practitioners in its planning to reform primary health care.[43]In its new strategy report, the head of the Ministry takes pride that the committee constitutes only citizens (implying no foreigners), but the citizens do not include any representatives from indigenous medicine showing the Ministry's bias against *parampara* practitioners.[44] In many ways, it appears that the government likes to promote the kind of indigenous medicine that they think is official and modern and does not involve the *parampara* practitioners. This might be due to the lack of a comprehensive idea or inclination to understand what constitutes indigenous medicine.
4. Although the government is eager to meet the goals laid out by the WHO by making policies and showing their political correctness, there needs to be more enthusiasm in implementing these policies. On the one hand, the government is proud of its ancient roots, and on the other, a belief that in its original form, indigenous medicine representing *parampara* practitioners is outdated. The roots of this attitude can be traced to the elitist group that revived indigenous medicine. But the difference is that revivalists intended to genuinely

promote indigenous medicine so that it will flourish on equal grounds with biomedicine. Meanwhile, the current officials seem to be hesitant about employing *parampara* practitioners for the public good.

5. As tourism is one of the leading industries, the government shows eagerness to use indigenous medicine to promote its medical tourism. Even in this instance, the government's aim is not so much to include *parampara* practitioners. While interest in bringing foreign exchange is the motive to make indigenous medicine as a tourism product and to promote manufacturing companies to make indigenous medicine to sell to foreign tourists and internationally, these measures only pose a threat to the scanty herbal resources thereby further hurting the practice of *parampara* practitioners.

Notes

1. Sree Padma is a scholar and writer of South Asian Cultural history. She has published and edited five books and thirty-two articles in peer-reviewed journals. She has taught at Andhra University, India, Harvard University, Bowdoin College, and the University of Chicago. E-MAIL: spadma@bowdoin.edu
2. Rathnayake 2015, 32-46.
3. Wirz 1954, 5.
4. World Health Organization. "The promotion and development of traditional medicine." who.int/ iris/handle/10665/40995 (accessed 5 July 2019).
5. Forsberg 2013, 31.

5A. Higuchi 2002.

6. Ayurvedic Act No 31 of 1961 (Parliament of Ceylon, 1961), Part VII Chapter 72 says, "anyone who is not registered Ayurvedic practitioner and practices for gain Ayurvedic medicine and surgery shall be guilty of offense".
7. Pieris September 8, 2015.
8. Attygalle 1994 and Roberts 1931.
9. Arsekularatne 2005, 95.
10. A Story of Discovery: Natural Compound helps treat Breast and Ovarian Cancer July 11, 2019.
11. Nordstrom 1988; Waxler 1984,187-205; Waxler 1988, 220-235; Wolfers1989, 111-1119; Pieris 2001, 82-88.
12. Higuchi 2002, 128 & 174; Forsberg 2013.
13. Kusumaratne 2013, 226-227.

14. De Silva, Nirekha 2015, 151
15. Glynn & Heymann1985, 470-472; Sachs & Tomson1992, 307-315; Nichter and Nordstrom 1989, 367-390.
16. Udayanga 2018, 276-292.
17. Fernando 2003, 31-32.
18. Ibid 31.
19. Ratnayake and Kariyawasam 2008, 625.
20. Rubber Asia July 12, 2018.
21. Wickramagamage 1998, 2015-2028.
22. Myers1990, 243-256.
23. Sri Lanka Police: "A Large-Scale Ganja (Cannabis) Raid in Thanamalvila and Hambegamuwa": https://www.police.lk/index.php/nortable-services/794-a-large-scale-ganja-cannabis-raid-in-thanamalwila-and-hambegamuwa (accessed September 15, 2018).
24. Nisar Ahmad et all 2011, 330-333.
25. Higuchi, 129; De Silva, Nirekha, 205.
26. De Silva, Nirekha, 203.
27. Policies and Laws: Conservation of Wildlife Heritage for Present & Future Generation. "Fauna and Flora Protection Ordinance (Chapter 469).": http://www.dwc.gov.lk/?page_id=18 (accessed July 14, 2019).
28. Samath July 4, 2015.
29. Wijeratne November 8, 2015.
30. Weerakoon & Wijesundara 2012, xviii-xix.
31. Higuchi,128.
32. Wijesundara, August 4, 2016.
33. "Sri Lanka's Health Care Challenges" *The Economist*: Intelligent Unit. Sri Lanka. November 24, 2014: http://country.eiu.com/article.aspx?articleid=1502512534&Country=Sri%20Lanka&topic=Economy&subtopic=Forecast (accessed 6 July 2019).
34. International Trade Centre (ITC) Medical and Wellness Tourism: Lessons from Asia Geneva: http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Medical%20and%20wellness%20Tourism%20-%20lessons%20from%20Asia_L.pdf, 25 (accessed 6 July 2019).
35. (Sri Lanka Tourism Website) "Products": https://www.srilanka.travel/wellness-tourism/products.php (accessed July 6, 2019).
36. Higuchi interviewing a number of *parampara* practitioners reports only 13.6% of them were employed in tourist related institutions: Higuchi 2002, 119.

37. Higuchi, 122.
38. Perera, Kamal. April 2012; Ministry of Health, Nutrition & Indigenous Medicine. "Sri Lanka Ayurveda Drug Corporation": http://www.indigenousmedimini.gov.lk/SLADC.html (accessed July 6, 2019).
39. Hoareau and DaSilva 1999.
40. Ratnayake and Kariyawasam, 625.
41. De Silva, Asoka and Wettasinghe 2004.
42. Ministry of Health, Nutrition & Indigenous Medicine. "Sri Lanka Ayurveda Drug Corporation".
43. Perera, Susie et all 2019, 21-25.
44. Ministry of Health, Sri Lanka. "National Health Strategic Plan 2016-2025 Vol. II: Preventive Services." http://www.health.gov.lk/moh_final/english/public/elfinder/files/publications/HMP2016-2025/Preventive%20%20Services%20pdf.pdf (accessed July 10, 2019).

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