THE IMPORTANCE OF COMMONLY USED SPICES IN SRI LANKAN CUISINE (AYURVEDA AND MODERN PERSPECTIVE)

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INTRODUCTION

Spices are substances made from plants or herbs and their specific parts are used to give a special flavour to food (Cambridge, n.d.). Spices, seasonings, herbs and condiments are used synonymously in most of the contexts, but they are different from each other in meaning (Chavasit & Photi, 2018). From ancient times, Sri Lankan traditional cuisine is strongly linked to nutritional, therapeutic and pharmacological considerations of nutrients and cooking methods. In addition to the essential nutritional value, they give flavour, aroma and colour to the food and also act as preservatives. Spices play a crucial role in the prevention of non-communicable diseases (NCDs) and other ailments (Mihiranie, Jayasinghe, Jayasinghe & Wanasundara, 2020; Withanachchi, 2019). Spices used in this study are *Brassica nigra, Elettaria cardamomum, Piper nigrum, Garcinia cambogia, Zingiber officinale, Curcuma longa, Syzgium aromaticum, Murraya koenigii, Coriandrum sativum, Cinnamomum zeylanicum, Foeniculum vulgare, Capsicum annuum, Tamarindus indica, Cuminum cyminum* and *Trigonella foenum-graecum.*

The aim of this study was to analyse the medicinal value of the selected 15 common household spices according to Ayurvedic and modern perspectives. This review based on spices in Sri Lankan cuisine gives evidence-based information and raises awareness about the spices used in Sri Lanka with their pharmacological details. These details will also help further exploration and future research.

METHODOLOGY

The data were collected from Ayurvedic texts and treatises, Ayurvedic pharmacopeia, textbooks on agriculture, online research articles on ScienceDirect, ResearchGate, PubMed®, Google Scholar, J-STAGE, international research journals, and databases from the Department of Export Agriculture. The study was conducted by referring to the aforementioned sources and by analysing the Ayurvedic pharmacodynamic properties and their actions as per modern medicine. The analysis was done by tabulating the pharmacodynamic properties of each drug as mentioned in Ayurvedic pharmacopeia with the use of Microsoft Excel 2010 version. Then the data were converted to a bar chart for the purpose of data presentation. Moreover, active major chemical constituents in each spice with their botanical details were tabulated (qualitatively) according to agricultural and allopathic medicine.

RESULTS AND DISCUSSION

The pharmacodynamic properties of a single drug as mentioned in Ayurvedic pharmacopeia are shown in Figure 1. In Ayurveda, the term *rasa* means taste, but it is beyond the perception obtained from the gustatory sensory organ, the tongue. Also, the other properties like *guna* (physical attributes), *virya* (potency of the drug or the crude material), *vipaka* (final taste that comes after the digestion) cannot be perceived by the system of organs in the body. They were identified by the ancient sages using their higher spiritual powers. For example, *prabhava* acts as the main affecting factor of a particular drug in comparison to its *virya* in certain circumstances because *prabhava* is a special potency that affects the particular target directly irrespective of pharmacodynamic properties (Kumarasinghe, 1991).

However, for the purpose of analyzing and comparing, correlations and similarities of pharmacodynamic properties with modern terminologies were considered. Table 1 shows the modern pharmacological description with botanical details of the fifteen (15) selected spices.

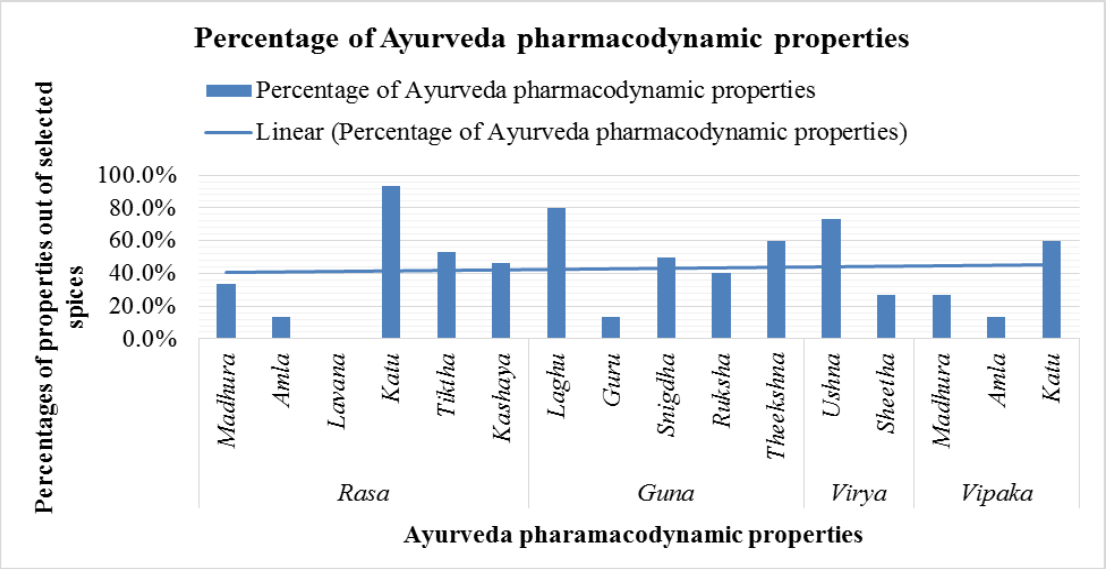

Figure 1: Percentage of Ayurveda pharmacodynamic properties. Adapted from Jayasinghe, D.M., Kumarasinghe, A., Weerasinghe, L., & Ramanayaka H.A.L. (1985); Jayasinghe, D.M., Kumarasinghe, A., Weerasinghe, L., & Ramanayaka H.A.L. (1985); Chauhan, M. (2019); Fathima S.N. (2015).

Table 1
Modern pharmacological description of spices

	Local name of the spice	Botanical name	Family	Used part	Major chemical constituents
1	*Aba*	*Brassica nigra*	Brassicaceae	Seeds	Sinalbin Sinigrin
2	*Enasal*	*Elettaria cardamomum*	Zingiberaceae	Seeds	Cineole Terpnayl acetate
3	*Gammiris*	*Piper nigrum*	Piperaceae	Seeds	Piperine Piperetine
4	*Goraka*	*Garcinia cambogia*	Guttiferae	Pericarp of the fruit	Gambogic acid Cambogin
5	*Inguru*	*Zingiber officinale*	Zingiberaceae	Rhizome	Shogaol Gingerol
6	*Kaha*	*Curcuma longa*	Zingiberaceae	Rhizome	Curcumin
7	*Karabuneti*	*Syzgium aromaticum*	Myrtaceae	Flower bud	Eugenol
8	*Karapincha*	*Murraya koenigii*	Rutaceae	Leaves	Sabinene Pinene Terpinene
9	*Kottamalli*	*Coriandrum sativum*	Apiaceae	Seeds	Linalool Borneol

10	*Kurundu*	*Cinnamomum zeylanicum*	Lauraceae	Bark	Cinnamaldehyde Eugenol
11	*Mahaduru*	*Foeniculum vulgare*	Apiaceae	Seeds	Anethole Pentanone
12	*Miris*	*Capsicum annuum*	Solanaceae	Dried fruit	Capsaicin Oleoresin
13	*Siyambala*	*Tamarindus indica*	Leguminosae	Pericarp of the fruit	Catechin Carboxylic acids Oleic acid
14	*Suduru*	*Cuminum cyminum*	Apiaceae	Seeds	Cuminaldehyde
15	*Uluhal*	*Trigonella foenum-graecum*	Fabaceae	Seeds	Diosgenin Gitogenin

Note: The data were adapted from "Department of Export Agriculture. (2021). *Cardamom.* Retrieved from http://www.dea.gov.lk/cardamom/ & Prajapati, N.D., Purohit, S.S., Sharma, A.K., & Kumar, T. (2003)

Rasa predominant *dravya* (substances) are considered *ahara* (foods). The analyzed results of *rasa* are important when considering spices. According to the taste of spices *katu rasa* (pungent taste) is the most predominant *rasa* and the other *rasas* are minor in quantity while *lavana* (salty taste) is absent. Due to the prominent *laghu* (lightness) and *theekshna* (sharpness) *gunas* (attributes) as well as *ushna virya* (hot potency), spices enhance the appetite which is the most expected result of adding spices to food. By analyzing the Ayurvedic pharmacodynamic properties and actions related to them, it is possible to conclude that the majority of the above spices have *kapha-vata shamaka* (pacifying) and *pitta vardhaka* (increasing) actions while some have *tridosha shamaka* actions. Therefore, according to Ayurveda, these spices can be used as *deepana* (digestive enhancing), *pachana* (digesting the toxins), *vata anulomana* (removing the flatus), *krimighna* (anthelmintic), *mukha vaishadyakara* (oral cleansing), *ruchi vardhaka* (appetizing), *rakthashodhaka* (blood purifying), *kaphanissaraka* (expectorant), *mutrala* (diuretic), *vajeekarana* (aphrodisiac), and *vishaghna* (detoxifying). Also, these spices help to cure the ailments like, *agnimandya* (low digestive power), *aruchi* (anorexia), *ajeerna* (indigestion), *adhmana (*flatulence), *mala vibandha* (constipation), and *krimi roga* (worm infestations) like Gastro-Intestinal Tract (GIT) disorders prominently. These spices are further effective for *shvasa* (bronchial asthma), *kasa* (cough), *rakta gata roga* and *hrid roga* (hematological disorders and heart diseases), *mutrakrichra* (dysuria), *klaivya* (impotency) etc. (Jayasinghe, Kumarasinghe, Weerasinghe & Ramanayaka, 1985; Chauhan, 2019; Fathima, 2015).

Concerning the modern aspects; these spices have aromatic, carminative, cardio-tonic, antioxidant, antimicrobial, antiviral, antifungal, anti-coagulant, anti-carcinogenic, and anti-inflammatory actions in relation to their active chemical compounds. Therefore, they have potential effects on both infections and infestations, cancers, hypertension, diabetes mellitus, coronary and ischemic heart diseases, bronchial asthma, cough like upper respiratory disorders, neurodegenerative diseases (by scavenging free radicles) and common GIT disorders like nausea, anorexia, constipation, abdominal pain, diarrhoea, toothache, and urinary tract disorders (e.g. urinary calculi and urinary tract infections) (Department of Export Agriculture, 2021; Prajapati, Purohit, Sharma & Kumar, 2003).

CONCLUSIONS/ RECOMMENDATIONS

The present review confirmed the medicinal importance of spices in Sri Lanka from the Ayurvedic and modern perspectives. The selected spices help to prevent common NCDs as well as to improve the

quality of food. In conclusion, biochemical analysis regarding the changes of therapeutic qualities and actions during cooking and related procedures with reference to the above-mentioned spices of Sri Lankan cuisine is highly recommended.

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