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**Possibility of using physical and chemical properties for standardization of  
 "Seetharama Watee" – A popular Sri Lankan indigenous medicine**

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Although the standardization of herbal drugs is fundamental in the herbal drug industry its accomplishment is extremely difficult as these herbal drugs by nature are mixtures of many constituents and hence the active principles in most cases are unknown. However, it is possible to generate physico-chemical fingerprints for the standardization of these drugs. "Seetharama" which is a herbo-mineral drug pill containing 28 herbs and 9 minerals, was selected for this study as it is widely used in the treatment of febrile illness.

Seetharama pills were prepared as per the "Watika Prakaranaya", using the above minerals in purified forms and powdered herbs mixed thoroughly and ground using 5 different herbal juices and 2 oils for 7 days. The pills (S<sub>0</sub>) were made to the size of green gram grain and dried under shade and were compared with five commercially available counterparts (S<sub>1</sub> – S<sub>5</sub>) for several parameters related to its physical properties; weight, specific gravity, loss on drying, ash content, acid-insoluble ash and chemical properties (hexane, dichloro methane, ethyl acetate and methanol extraction values). One-way ANOVA followed by the Dunnett test was used in the analysis of data at 0.05 significance level.

**Table 1. Physico-chemical properties of S<sub>0</sub>, S<sub>1</sub>-S<sub>5</sub> Seetharama pills**

	Wt.	Ash content	Acid-insoluble ash	Loss on drying	Specific gravity	Hexane Ex%	Dichloro methane Ex%	Ethyl acetate Ex%	Methanol Ex%
S <sub>0</sub>	1.32± 0.04	10.08± 0.59	0.05 ± 0.03	9.25± 0.97	1.16 ± 0.01	26.54± 1.43	2.38 ± 0.03	1.57 ±0.18	8.45± 1.47
S <sub>1</sub>	1.44± 0.24	12.66± 0.01	0.026± 0.01	7.19± 0.57	1.14± .025	13.04± 1.32	1.22± 0.02	1.16± 0.07	12.1± 3.16
P <sup>**</sup>	0.785	<b>0.021</b>	0.402	0.546	0.900	<b>0.000</b>	0.696	<b>000</b>	0.553
S <sub>2</sub>	0.73± 0.01	16.21± 0.59	0.03± 0.00	10.85± 0.48	1.25± 0.17	6.73± 0.05	2.89± 0.16	2.49± 0.19	15.2± 0.74
P <sup>**</sup>	<b>0.000</b>	<b>0.000</b>	1.000	0.756	<b>0.009</b>	<b>0.000</b>	0.984	0.083	0.072
S <sub>3</sub>	0.75± 0.11	12.35± 0.19	0.70± 0.04	9.2± 0.92	1.06± 0.02	12.22± 0.45	2.33± 0.34	1.96± 0.49	11.34± 1.9
P <sup>**</sup>	<b>0.000</b>	<b>0.047</b>	1.000	1.000	<b>0.003</b>	<b>0.000</b>	1.000	0.774	0.750
S <sub>4</sub>	2.35± 0.01	9.79± 0.21	0.05± 0.01	9.31± 1.01	1.22± 0.03	5.8± 0.14	2.1± 0.14	1.74± 0.04	12.21± 0.63
P <sup>**</sup>	<b>0.000</b>	0.997	1.00	1.00	<b>0.000</b>	<b>0.000</b>	0.999	0.991	0.525
S <sub>5</sub>	1.5± 0.01	11.41± 0.09	0.31± 0.31	11.1± 0.11	1.09± 0.02	13.08± 0.28	1.45± 0.71	3.03± 0.59	15.55± 1.80
P <sup>**</sup>	0.403	0.402	0.178	0.636	0.055	<b>0.000</b>	0.850	<b>0.003</b>	0.055

P<sup>\*\*</sup> – Significance

Standardization by assessment of physical and chemical properties shown in Table 1 can be used to obtain consistent quality and optimal efficacy of "Seetharama" pills prepared according to "Watika Prakaranaya."

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