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Empirical analysis of veerya by exothermic reaction in context of ayurvedic drugs

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Abstract

Veerya is inherently the ultra-chemical accomplishment of the drugs that is principally of two types as per *Ayurvedic* lexicon-*Ushna* (hot) and *Sheeta* (cold). *Veerya* is given prime connotation in classics as it adopts the karma of a *dravya* because *nir veerya dravya* is prepensed as worthless. So *veerya* (potency) of drug exhibits an indispensable role in the treatment principles. Aims and Objectives are to analyse the *veerya*, exothermic and endothermic reactions plays an imperative role which is exhibited hereby taking *Ayurvedic* drugs as paradigm. 10 gram powder each of *Masha, Kola, Kulattha, Suradaru, Rasna, Atasi, Gokshura, Kusha, Bala* and *Jeevanti* was individually mixed with 10 ml water taken in 10 different beakers and temperature was acclaimed after 1, 3 and 5 minutes. These study shows *Ushna veerya dravya* unveiled accretion in the temperature from 1⁰-4⁰ f, while *Sheeta veerya* disported abatement in temperature varied from 1-3⁰f whilst temperature of water remaining constant So we can conclude that, Perception of *Veerya* can be scientifically corroborated taking exothermic reaction analysis as an intervention.

Keywords: Ayurvedic drugs, veerya, ushna veerya, sheeta veerya, exothermic reaction

1. Introduction

The usefulness of a *Dravya* which qualifies the same to reveal its action is known as *Veerya*. Mainly two types of *veerya* are explained in *Ayurvedic* classics viz. *Ushna* and *Sheeta veerya*. Some drugs are also known to exhibit *Anushna-shitaveerya* as per *Ayurveda*. Hot and cold terminology is showing only temperature while *Veerya* is having both qualities temperature and simultaneously drug action. *Veerya* is mainly held responsible for main action of the drug among various attributes like *Rasa* (Taste), *Guna* (Properties), *Vipaka*, *Prabhavit* etc. *Veerya* is directly related to the mode of action of the drug. *Paka* of drugs and food (physiochemical reactions) at the level of *Annavaha srotas* (gastrointestinal tract) is done by *veerya* which is said to be the power of action^[1]. Exothermic reactions vindicate energy in form of heat, light and sound during various chemical reactions. In an exothermic reaction, energy is unconfined because the total energy of the *Dravya* (material) is less than the entire energy of the reactance. Due to this reason it is held responsible for change in Enthalpy i.e. it shows negative enthalpy ($\Delta H < 0$). For example when water is assorted in Sulphuric acid it dissociates fast and releases energy. Endothermic reaction absorbs energy mostly in the form of heat during chemical reactions. In this reaction, energy is absorbed because the total energy of the *dravya* (material) is more than the entire energy of the reactance, due to this reason it is responsible for positive enthalpy ($+\Delta H$). An example of this type of reaction is photosynthesis, where plants absorb the energy from sun rays and react with carbon dioxide and water and make glucose and oxygen. Many of the chemical reactions involve toxic substances, utmost heat or cold, or chaotic disposal methods. These demonstrations are safe and easy^[2].

2. Materials and Methods

2.1 Exothermic reaction for *veerya* analysis

2.1.1 Authentication and Procurement: Following ten *Ayurvedic* drugs taken for the present study were procured from KLE *Ayurveda* Pharmacy Belgaum and authenticated by *AYUSH* approved ASU drug testing Laboratory Central research Facility KLEU's Shri BMK *Ayurveda* Mahavidyalaya and Research Centre, Belgaum.

2.1.2 Procedure: 10ml of water was taken in 10 different beakers and temperature was noted down thrice, then 10 grams of medicine churna is mixed in each beaker separately and changes in the temperature were perceived after 1, 3 and 5 minutes.

Table 1: Latin name along with Veerya of Drugs:

S. no.	Name of drug	Latin name	Veerya
1.	<i>Masha</i>	<i>Phaseolus mungo</i> Linn.	<i>Ushna</i> (Hot) ^[3]
2.	<i>Kola</i>	<i>Zyzy Phus Jujube</i> Lam	<i>Sheet</i> (Cold) ^[4]
3.	<i>Kulattha</i>	<i>Dolichos Biflorus</i> Linn	<i>Ushna</i> (Hot) ^[5]
4.	<i>Suradaru</i>	<i>Cedrus deodara</i> Roxb	<i>Ushna</i> (Hot) ^[6]
5.	<i>Rasna</i>	<i>Pluchea lanceolata</i> Oliver & Hiren	<i>Ushna</i> (Hot) ^[7]
6.	<i>Atasi</i>	<i>Linum usitatissimum</i> Linn.	<i>Ushna</i> (Hot) ^[8]
7.	<i>Gokshura</i>	<i>Tribulus terrestris</i> Linn.	<i>Sheet</i> (Cold) ^[9]
8.	<i>Kusha</i>	<i>Desmostachya bipinnata</i>	<i>Sheet</i> (Cold) ^[10]
9.	<i>Bala</i>	<i>Sida cardifolia</i> Linn.	<i>Sheet</i> (Cold) ^[11]
10.	<i>Jeevanti</i>	<i>Leptadenia reticulata</i> W. & A.	<i>Sheet</i> (Cold) ^[12]

3. Results

Table 2: Exothermic reaction of ayurvedic drugs

S. no.	Drug	Media Temperature			Sample Temperature		
		After 1 minutes	After 3 minutes	After 5 minutes	After 1 minutes	After 3 minutes	After 5 minutes
1.	<i>Masha</i>	76.6 °F	76.6 °F	76.6 °F	77.6°F	78.4°F	78.2°F
2.	<i>Kola</i>	76.6 °F	76.6 °F	76.6 °F	72.8°F	72.4°F	72.0°F
3.	<i>Kulattha</i>	76.6 °F	76.6 °F	76.6 °F	78.6 °F	78.8 °F	79.0 °F
4.	<i>Surdaru</i>	76.6 °F	76.6 °F	76.6 °F	77.6 °F	77.8°F	77.6°F
5.	<i>Rasna</i>	76.6 °F	76.6 °F	76.6 °F	79.6 °F	79.6 °F	79.6 °F
6.	<i>Atasi</i>	76.6 °F	76.6 °F	76.6 °F	77.8°F	77.8°F	78.0°F
7.	<i>Gokshura</i>	76.6 °F	76.6 °F	76.6 °F	74.4°F	74.0°F	74.0°F
8.	<i>Kusha</i>	76.6 °F	76.6 °F	76.6 °F	73.6 °F	73.6°F	73.4°F
9.	<i>Bala</i>	76.6 °F	76.6 °F	76.6 °F	73.8°F	73.8°F	73.8°F
10.	<i>Jeevanti</i>	76.6 °F	76.6 °F	76.6 °F	73.6°F	73.4°F	73.4°F

4. Discussion and Conclusion

From above cited result, it is clear that *Ushna veerya dravya* showed increment in temperature from 1⁰- 4⁰ f while *Sheeta veerya dravya* showed reduction in temperature from 2-4⁰f and temperature of water remaining constant i.e.76.6 °f. After experimental study it is proved that exothermic reaction is showing whatever veerya of medicine as explained in classics. Concept of Veerya can be scientifically proven taking exothermic reaction analysis as an intervention

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