Research Paper Medical Science

Endothermic Reaction For Veerya Analysis of Amalaki (*Emblica Officinalis Gaertn*.) An Experimental Study

Dr.Madhu Pathak PG Scholar, Department of Agadtantra, KLEU, Shri BMK Ayurveda Mahavidyalaya, Belgaum, Karnataka

Dr. Satej Banne PG Scholar, Department of Dravyaguna, KLEU, Shri BMK Ayurveda Mahavidyalaya, Belgaum, Karnataka.

Dr.Nalinikanta Parida PG Scholar, Department of Dravyaguna, KLEU, Shri BMK Ayurveda Mahavidyalaya, Belgaum, Karnataka.

KEYWORDS Exothermic, Endothermic, Veerya

ABSTRACT

Ayurveda mainly deals with two types of veerya (potency). First is sheeta (cold) and another is ushna (hot). Ayurveda's treatment modalities are based on Rasapanchak (Rasa,Guna,Veerya, Vipak and Prabhav). So veerya (potency) of drug plays vital role in treatment principles. So to scrutinize the potency of the drug exothermic and endothermic reactions plays imperative role. Different market samples shows adulterants instead of original classical drug or in case of endogenous medicinal plants other substitute drugs were used. So to overcome such blame towards Ayurveda screening of these test is necessary.

Introduction:
Many chemical reactions release energy in the form of heat, light, or sound. These are exothermic reactions. Exothermic reactions may occur spontaneously and result in higher randomness or entropy ($\Delta S > 0$) of the system. They are denoted by a negative heat flow (heat is lost to the surroundings) and decrease in enthalpy ($\Delta H < 0$). In the lab, exothermic reactions produce heat or may even be explosive.

There are other chemical reactions that must absorb energy in order to proceed. These are endothermic reactions. Endothermic reactions cannot occur spontaneously. Work must be done in order to get these reactions to occur. When endothermic reactions absorb energy, a temperature drop is measured during the reaction. Endothermic reactions are characterized by positive heat flow (into the reaction) and an increase in enthalpy ($+\Delta H$).

Examples of Endothermic and Exothermic Processes:
Photosynthesis is an example of an endothermic chemical reaction. In this process, plants use the energy from the sun to convert carbon dioxide and water into glucose and oxygen. This reaction requires

15MJ of energy (sunlight) for every kilogram of glucose that is produced:

$$\text{sunlight} + 6CO_2(g) + H_2O(l) = C_6H_{12}O_6(aq) + 6O_2(g)$$

An example of an exothermic reaction is the mixture of sodium and chlorine to yield table salt. This reaction produces 411 kJ of energy for each mole of salt that is produced:

$$Na(s) + 0.5Cl_2(s) = NaCl(s)$$

Demonstrations You Can Perform:
Many exothermic and endothermic reactions involve toxic chemicals, extreme heat or cold, or messy disposal methods. These demonstrations are safe and easy.[1]

MATERIALS AND METHODS:
EXOTHERMIC REACTION FOR VEERYA ANALYSIS:
Procedure:
10 ml of water taken in a beaker and temperature were noted down for three times, then 10 grams of Amalaki churna is added in water and changes in the temperature were noted down after 1 minute, 3 minutes and 5 minutes and a hour.[2]

Table No.1: Endothermic reaction of Emblica officinalis Gaertn.

Media			Duration		
Water	Water	Water	After 1 minute (Emblica officinalis Gaertn.)	After 3 minutes (Emblica officinalis Gaertn.)	After 5 minutes (Emblica officinalis Gaertn.)
75.6°f	75.6°f	75.6°f	75.0°f	74.8°f	74.8°f

Image 1: After 1 minute
Image 2: After 3 minutes
Image 3: After 5 minutes

RESULT AND CONCLUSION:
From above said result it is clear that Amalaki (Emblica officinalis Gaertn.) as Sheet veerya dravya showed endothermic reaction and rise in the temperature were vary from 0.2 – 2° C.

REFERENCES

1. Anne Marie Helmenstine, Endothermic and Exothermic ReactionsEnthalpy, Entropy, and Spontaneity, available from http://chemistry.about.com/cs/generalchemistry/a/aa051903a.htm, date: 28/9/14. | 2. Dr.S.C.Dhyani, Rasa-Panchaka (Ayurvedic Principles of Drug Actions), 2nd ed. 2003, Chaukhambha Krishnadas academy, p.no. 115. |