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STUDY OF THE EFFECT OF MEDICINAL PLANTS EXTRACTS ON THE INFECTED BLOOD

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Abstract- Medicinal plants are used for treating and preventing specific disease that affects the human being. There are several species of medicinal plants available in nature; amongst those researcher selected Basil, Zingiber, Azadirachtaindica, Curcuma longa, Carica Papaya, Allium sativum for research purpose. Natural compounds have been isolated from various parts such as leaves, fruits, stem, roots, and seeds of these plants. The present paper is the comparative study of variation in the physical properties like pH, critical solution temperature, and boiling point, etc. of these medicinal plants, individually, in combination ratios and also with the infected blood doped samples.

Keywords--Medicinal plants; Physical Parameters; Infected Blood; pH; Critical Temperature; Boiling Point.

I. INTRODUCTION

The main aim of this study is to prepare a combination from the extracts of medicinal plants which can be used to treat air borne and mosquito bite diseases. This will help to decrease the pollution on earth and increase the human health. No reference is available with regards to the effect of the combination of all the six medicinal plants on these diseases. Many diseases can be treated by using these plants. The basic concern of this work is to improve human health with the help of easily available natural resources naturally. This study will encourage tree plantation on a large scale which will not only provide shade, ample of rains but will also help to reduce atmospheric as well as aquatic pollution. People will get naturally occurring medicine at very cheap rate.

Basic needs of the human are food clothes and shelter. But now a day's medicines have also become the basic need of human being. There are several types of medicines. But from last few centuries, there is a drastic increase in the requirement of plant-based medicines for treating or curing some diseases. These plants are known as medicinal plants. Innumerable numbers of medicinal plants are available in nature. Natural compounds isolated from various parts such as leaves, fruits, stems, roots, seeds of these plants have been shown to possess excellent medicinal values. In this research, species of medicinal plants such as leaves of Basil, roots of Zingiber, leaves of Carica papaya, leaves of AzadirachtaIndica, roots of Curcuma longa and Allium sativum have been selected for the studies. All these plants are having different physical, medicinal as well as chemical properties. Basil is known as the queen of herbs [5]. The chemical composition of Basil is highly complex because of inherent botanical, biochemical complexity [1]. Allium sativum is one of those plants which were seriously investigated over several years and used for centuries to fight infectious diseases. It contains Allicin compound which is considered the major antioxidant and scavenging compound [2]. Also, the Zingiber contains gingerols which has analgesic, sedative, antipyretic and antibacterial effects [3]. Leaves of Carica papaya contains pepsin which is highly used for treatment for the various disease [4]. AzadirachtaIndica is known as the village of pharmacy because of its healing versatility [6]. Curcuma longa is very important spice in India which is obtained by rhizome of plants. [7] It shows highly anti-oxidative as well as anti-inflammatory properties.

As these plants contain different medicinal properties, we proposed to utilize these properties for the comparative studies of their physical parameters, with some infected blood sample in various combinations. There are some viral diseases or airborne diseases like Dengue Malaria, Swine flu, Chikungunya, which affects blood contents i.e. WBC's. The different physical properties of these plants in combination will vary

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when they are treated with these infected blood samples.

II. MATERIALS AND METHODS

For these studies, the leaves of basil, Carica papaya, AzadirachtaIndica are taken from the different botanical garden in Pune city. Also fresh roots i.e. Allium Sativum, Zanzibar and Curcuma longa are taken from the vegetable market in Pune.

Plant Material: The plant material consists of leaves of Basil, Carica Papaya and AzadirachtaIndica and roots like Zingiber Curcuma Longa and Allium Sativum.

Solvent: Distilled water

Blood sample: Blood samples infected with diseases like viral fever and dengue fever were obtained from pathology lab.

Instruments used: pH meter, Boiling point apparatus, Distillation apparatus

Extraction method: Plants were washed thoroughly, and their extracts were extracted separately with distilled water through the process of distillation.

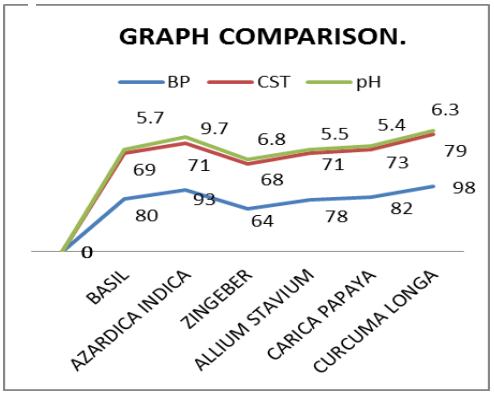
The physical properties i.e. pH, BP (Boiling Point) and CST (Critical Solution Temperature), were determined by using pH meter and boiling point apparatus. And the following results were obtained for each extract.

III. RESULTS AND DISCUSSION

The experiment was carried out under the normal conditions of temperature and pressure by using calibrated instruments and distilled water.

Medicinal plants.	Physical parameters.		
	B.P.	CST	pH.
B	80	69	5.7
AI	93	71	9.7
Z	64	68	6.8
AS	78	71	5.5
CP	82	73	5.4
CL	98	79	6.3

Table: I Variation in physical properties of various medicinal plants.



Graph: I Variation in physical property of various Medicinal plants.

The above table and graph shows variation in physical properties of all the selected medicinal plants. The medicinal plants show different values of physical properties because of their different chemical composition.

When these medicinal plants are combined together in 1:1:1:1:1 ratio their values show variations in the physical properties due to additive cumulative characteristics. For this study we selected 5 medicinal plants i.e. Basil: Azadirachta Indica: Zingiber: Allium sativum: Carica papaya, Curcuma longa in different combinations.

Plants in1:1:1:1:1 ratio.	Physical parameters.		
	B.P.	CST	pH.
B+AI+Z+AS+CP	94	69	8.3
B+AI+Z+AS+CL	91	76	6.9
AI+Z+AS+CP+CL	93	75	7.6
B+Z+AS+CP+CL	90	72	6.3
B+Z+AI+CP+CL	97	71	6.6
B+Z+AI+CP+CL	98	70	7.4
MIXTURE OF ALL	98	71	9.2

Table: II Variation in physical properties when medicinal plants were taken in the ratio of 1:1:1:1:1.

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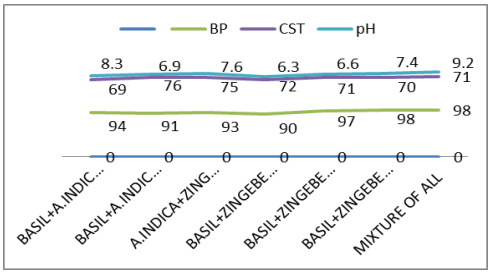
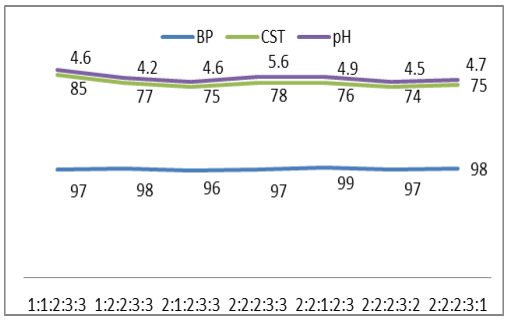


Graph: II comparative graphs between variations in physical properties on variation in medicinal plants combinations.

The table shows variations in all physical properties. The increase in the boiling point of the mixtures is because of the presence of different chemical components in the each of the medicinal plants. The individual medicinal plant shows acidic values while the combinations show alkaline values because of the antioxidant properties of the certain medicinal plants present in the combination. The combination BASIL+ZINGIBER+AZADIRCHTA INDICA+CERICE+PAPAYA+CURCUMA LONGA show neutral pH. The Allium sativum has highest anti-oxidant properties amongst these plant extracts due to which it exhibit alkaline pH. . But this combination shows neutral pH because of the additive and cumulative characteristic of physical properties. Therefore for further studies Allium Sativum was neglected in the combinations. The remaining medicinal plants were again combined in different ratios to determine their physical parameters. The results are shown in the table 3 below.

Plants in different ratio	Physical parameters.		
	B.P.	CST	pH.
B+AI+Z+CP+ CL(1:1:2:3:3)	97	85	4.6
B+AI+Z+CP+ CL(1:2:2:3:3)	98	77	4.2
B+AI+Z+CP+ CL(2:1:2:3:)3	96	75	4.6
B+AI+Z+CP+ CL(2:2:2:3:3)	97	78	5.6
B+AI+Z+CP+ CL(2:2:1:2:3)	99	76	4.9
B+AI+Z+CP+ CL(2:2:2:3:2)	97	74	4.5
B+AI+Z+CP+ CL(2:2:2:3:1)	98	75	4.7

Table III: Variation in Physical properties with the different combination of selected medicinal plants.

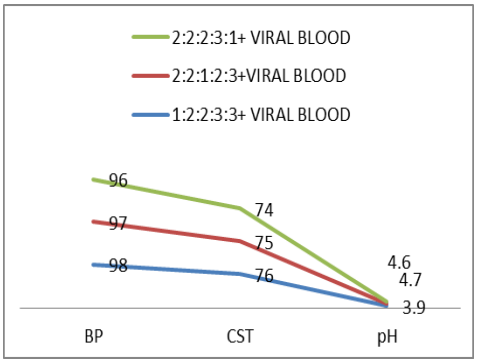


Graph: III variations in physical properties with the ratio of medicinal plant extracts.

It was observed that the second, fifth and seventh combination of medicinal plants gave the best values and was selected for the further studies. Selected medicinal plants were doped with infected blood samples i.e. dengue blood and virally infected blood and their parameters were determined. The sequence of these medicinal plants in this ratio was same as above. The observations are as shown in the table below.

combination with dengue blood	Physical parameters.		
	B.P.	CST	pH.
B+AI+Z+CP+ CL(1:2:2:3:3)+ DENGUE BLOOD	90	73	7.6
B+AI+Z+CP+ CL(2:2:1:2:3)+ DENGUE BLOOD	89	71	8.7
B+AI+Z+CP+ CL(2:2:2:3:1)+ DENGUE BLOOD	89	74	9.2

Table: IV variations in physical properties of the extracts doped with dengue infected blood sample.



Graph: IV comparative studies of physical properties of the extracts doped with dengue infected blood sample.

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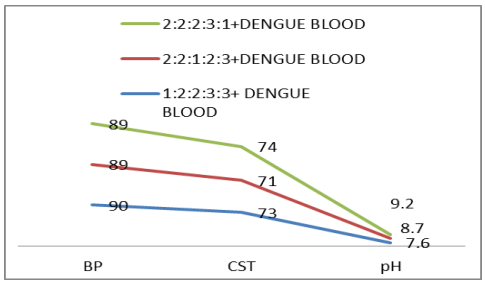
combination with viral blood	Physical parameters.		
	B.P.	CST	pH.
B+AI+Z+CP+ CL(1:2:2:3:3)+ VIRAL BLOOD	98	76	3.9
B+AI+Z+CP+ CL(2:2:1:2:3)+ VIRAL BLOOD	97	75	4.7
B+AI+Z+CP+ CL(2:2:2:3:1)+ VIRAL BLOOD	96	74	4.6

Table: V Variations in physical properties of the extracts doped with viral infected blood sample.

When the dengue-infected blood sample was treated with the various combinations, it exhibited alkaline pH excepting with the first combination i.e. 1:2:2:3:3 as shown in the table, which exhibited neutral pH. The doped viral blood sample exhibited approximately same values which may be due to the decrease in the value of WBC's. When the dengue infects the blood, the values of WBC's decrease due to the reaction, hence the pH of dengue-infected blood become acidic.



Graph: V Comparative studies of the physical properties of extracts doped with Viral infected blood sample.

The medicinal plants like basil, Carica papaya and other in the combination react with dengue-infected blood and increased the WBC in the blood, and therefore it shows neutral pH. While viral infected blood does not affect the WBC of the blood, hence its pH does not show any major change. Thus we can say that there is a variation in the pH values of the infected blood samples when combined with various medicinal plant combinations.

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