



IJAYUSH
International Journal of AYUSH
AYURVEDA, YOGA, UNANI, SIDDHA AND HOMEOPATHY
<http://internationaljournal.org.in/journal/index.php/ijayush/>

International Journal
Panacea
Research library
ISSN: 2349 7025

Original Research Article

Volume 10 Issue 04

July – August 2021

EXPERIMENTAL STUDY OF ARKESHWARA RASA AND ARBUDAHARA RASA

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Introduction -

In this modern age Man is always in the search of ways and means to attain better health, increase longevity, vigour, and delaying the process of aging and other age related problems. But unfortunately the food habits and ever increasing environmental pollutions have pushed the present day man into a precarious state of suffering from various diseases like cancer. Being an eternal science, 'Ayurveda', the 'science of human life', deals with physical, psychological as well as spiritual well being of an individual. It covers all the spheres of human life. It is not merely a materialistic science, but a fact full truth, which our great ancestral sages, through their experience, logic and power of wisdom, had found true and proved it to the truth of time. Now, the medical community all over the world considers *Ayurveda* as the last resort for unanswerable question whenever their hands are tied up. *Arbuda* is one of the surgical diseases and was explained in detailed by *Sushruta* the pioneer of in ancient ayurvedic texts that have remarkable similarities with modern

interpretation of cancer. While searching the literature one finds that *Arbuda* is the clinical sign correlated with the externally visible cancerous growth.

Cancer is a large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably. Prevalence of cancer is increasing day by day due to exposure of various carcinogens to human being like pesticides, colouring agents, artificial flavoring agents, and preservatives, metallic compounds by means of food, water and polluted environment. It derived its name from the appearance of the cut surface of a solid malignant tumour with the veins stretched on all sides as the animal the crab has its feet. The Hippocrate father of medicine only described and made drawings of outwardly visible tumors on the skin, nose, and breasts.

❖ **Research Design:**

Experimental study:

❖ **In Vitro Study:**

An in vitro study happens in a controlled climate, for example, in a test tube or petri dish. In vivo is Latin for "inside the living." It includes to tests, investigations, and systems that agents act in or on an entire living life form, like an individual, research center creature, or plant.

❖ **Cell Line Study:**

Cell culture and cell lines have expected a significant part in considering physiological, pathophysiological, and separation cycles of precise cells. It permits the assessment of stepwise alteration in the structure, biology and hereditary make up of the cell under controlled conditions.

❖ **Benefit :**

In vitro studies permit a species-specific, convenient, more suitable and more detailed analysis than can't be done with the whole organism. Just as studies in whole animals more and more replace human trials, so are *in vitro studies* replacing studies in whole animals. But there may be some disadvantage to face.

❖ **Need Of In Vitro Study:**

The harmful impact of chemotherapy are high. The current known modalities don't have any palatable response to disease. Along these lines, there is need to have natural treatment which can give lessening to this disease and help to dispose off harmful impact of present day modalities like chemotherapy , radiotherapy and other medical procedures too. Consequently, here we have done in vitro study on malignancy cell line.

In vitro study has carried out to find out anticancer property and cytotoxicity to avert the uncontrolled growth of cells.

The investigation has done on two cell line here:

(1) Colon cell line (HT-29)

(2) Breast cell line (Mcf-7).

The two cell lines were concentrate under culture flask to approve against disease effect and cytotoxicity of *Arkeshwara Rasa* and *Arbudahara Rasa*.

❖ **Aims And Objective:**

- To evaluate the in vitro anticancer effect & cytotoxicity of *Arkeshwara Rasa* on cell line HT-29 & Mcf-7.
- To evaluate the in vitro anticancer effect & cytotoxicity of *Arbudahara Rasa* on cell line HT-29 & Mcf-7.
- To compare the anticancer effect of *Arkeshwara Rasa* with *Arbudahara Rasa* on cell line HT-29 & Mcf-7.
- To assess, elaborate and evaluate role of drug on malignancy according to modern and *Ayurveda* science.

MATERIAL & METHOD

❖ **Sample Drugs:**

1. *Arkeshwara Rasa*
2. *Arbudahara Rasa*

❖ **Cell Line And Culture:**

The accompanying disease cell line has been utilized to test anticancer effect.

(1) Colon cell line (HT-29)

(2) Breast cell line (Mcf-7)

Previously mentioned malignant growth cell line would have filled in culture jar at that point impacts of test medication would have seen in lab under controlled environment.

❖ **Preparation Of Anti-Cancer Medication:**

Arkeshwara Rasa and *Arbudahara Rasa* would have formulated in NIA pharmacy to assess anticancer impact of the chosen drug on the chosen cell line. Crude material has purchased from GST certified Ayurveda Pharmacy to plan fundamental medication. *Ras sindoor* 10g has brought from certified Ayurveda Pharmacy to plan *Arbudahara Rasa* and *Rasindoor* 10g and *Tamra bhasam* 5g additionally purchased from GST certified Ayurveda Pharmacy to get ready *Arkeshwara Rasa*.

❖ **In Vitro Anti-Cancer Activity & Cytotoxicity Studies:**

Role of *Arkeshwara Rasa* and *Arbudahara Rasa* has evaluated on malignant cell lines. In vitro testing has done utilizing SRB measure conventions, each medication will be tried at 4 dose levels $1 \times 10^{-7}M$, $1 \times 10^{-6}M$, $1 \times 10^{-5}M$, $1 \times 10^{-4}M$, or 10, 20, 40, 80 $\mu g/ml$. Proper positive controls are run in each test and each investigation repeated three times. Results have presented in terms of GI50, TGI and LC50 values.

GI50 – Drug concentration that produces 50% inhibition of the cells.

TGI – Drug concentration that produces total inhibition of the cells.

LC50 – Drug concentration that kills 50% of the cells.

Amount of each compound required : 5 to 10mg

1. Assessment of in-vitro anticancer activity on HT-29 cell line-

Sr.no	Cancer cell line	Anticancer activity of <i>Arkeshwara Rasa</i>	Anticancer activity of <i>Arbudahara Rasa</i>	Positive Control (known Anti-cancer drug)
1.	HT-29 cell line	> 80	> 80	< 10

2. Assessment of in-vitro anticancer activity on Mcf-7 cell line-

Sr.no	Cancer cell line	Anticancer activity of <i>Arkeshwara Rasa</i>	Anticancer activity of <i>Arbudahara Rasa</i>	Positive Control (known Anti- cancer drug)
1.	Mcf -7 cell line	46.9	> 80	< 10

Study group— The study group has divided into 3 groups, two are study group and one is control group. The study group is Tested by *Arbudahara Rasa* and control group tested by known Anti-cancer drug that is Adriamycin.

1. In-vitro Anti -Cancer activity of *Arkeshwara Ras* and *Arbudahara Rasa* on HT-29 cell line

- **Study group-1**-The *Arkeshwara Rasa* has tested for anticancer activity w.s.r to colon cancer.
- **Study group -2**- The *Arbudahara Rasa* has tested for anticancer activity w.s.r to colon cancer.
- **Control group**—Known anticancer medicine has used in colon cancer on a possible control.

2. In-vitro Anti -Cancer activity of *Arkeshwaraa Rasa* and *Arbudahara Rasa* on Breast cell line (Mcf-7)

- **Study group-1**-The *Arkeshwaraa Rasa* has tested for anticancer activity w.s.r to Breast cell cancer.
- **Study group -2**- The *Arbudahara Rasa* has tested for anticancer activity w.s.r to Breast cell cancer.
- **Control group**—Adriamycin anticancer medicine has used in Breast cell cancer on a possible control.

Observation and results:

In present examination normal incentive for all the experiment explore for the distinctive dose level got more compelling if there should be an occurrence of *Arkeshwara Rasa* for dose level 10µg/ml in contrast with *Arbudahara Rasa*. The outcome has discovered positive for both the investigation drug in this examination. The outcome received for *Arkeshwara Rasa* on cell line Mcf-7 discovered more successful for 80µg/ml dose level than *Arbudahara Rasa*. The two medications discovered viable in anticancer impact and cytotoxicity and result has discovered positive.

The result has interpreted GI50 = 50% Inhibition of cancerous cell measured. In TGI- total cell of cancerous cell has measured. While LC 50 (50%) healing of cancerous cell has measured the result has compared with appropriate positive control.

Drug concentration for *Arkeshwara Rasa* i.e GI50 found more than 80% where GI50, concentration of drug causing 50% inhibition of cell growth. The drug concentration calculated from graph for *Arbudhar Rasa* that is GI50 more then 80% where concentration of drug causing 50% inhibition of cell growth. The drug concentration calculated from graph that is GI50 for standard drug control found less than 10% where concentration of drug causing 50% inhibition of cell growth. In this study the result found for drug concentration i.e.TGI calculated from graph for ADR found less than 10% where TGI, concentration of drug causing total inhibition of cell growth.

Discussion :

- In this segment an illuminating attempt is made to shed light on the silent facts unobserved in the conceptual and experimental plan. Discussion is the basic step in

establishment of a proposal and help in reaching to definite conclusion. So, as pointed out earlier that the present research work aims to undertake anticancer effect of the test drug *Arkeshwara Rasa* and *Arbudahara Rasa*.

- In present study the human colon cell line HT-29 and Mcf – 7 are used as In vitro model to measure anticancer and cytotoxic activity of study drug using medium RPMI 1640 containing 10% fetal bovine serum and 2Mml – glutamine. It has found that *Arkeshwara Rasa* showed more potential as compare to *Arbudahara Rasa* on HT-29 cell line and Mcf - 7. But the cytotoxic activity of both the study drug found less potential as compare to positive control.

Summary and Conclusion :

Finalization of the facts and results come forward from the study is laid in this segment. this point following the idea of integrative medication *Ayurveda* has offered heaps of help in improving personal satisfaction of malignant growth patients. Promising results were found in eliminating cell toxicity in present research on the chosen cell lines. The drug chosen *Arkeshwara Rasa* has capability of battling with diseased cells. The drug chosen *Arbudahara Rasa* likewise has potential of fighting sporadic cell development.

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