



STUDY OF ANTICANCEROUS ACTIVITY OF HARTAL SATTVA ON CELL LINING OF BREAST CARCINOMA

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Abstract:

No one in this world would choose to be diagnosed with cancer. It is perhaps the most dreaded disease of mankind. Regardless of stage of disease each individual patient of cancer is fearful for his life, and impact of the disease on his and his family's social, emotional, financial aspect is huge. From the moment of diagnosis and for the rest of his life that person is constantly in pursuit of hope, relief, happiness, reassurance and cure. Treatment of cancer ranges from the use of powerful chemicals, to bursts of radiation, to complete removal of tumour and surrounding tissue by surgery. Each treatment type out of these may bring a certain level of risk, pain and disability to the patient. And in a developing country like India where the economical implications of any treatment matters the most, the cost of the treatment of cancer is unbearable for many. And hence there is always demand for newer, safer, economical alternative for these treatment options so attempt has been made in this article to look for is there any alternative in Ayurveda specifically in Rasashastra.

Keywords: *Hartal, Sattvapatana, Cancer, Ayurveda, Rasashastra,*

Introduction:

Cancer is a name given to a large group of diseases, all of which have one thing in common; cells that are growing out of control. Normally the cells that make up all parts of our body go through a predictable life cycle. Old cells die and new cells arrives to take their place. Occasionally, this process goes away and cells begin to multiply out of control. The end result is the mass of cells called a tumor. Cancers of the breast is among the commonest of human cancers throughout the world. Breast cancer is usually treated with surgery, which may be followed by chemotherapy or radiation therapy, or both. But as these treatments brings many risks with it, researchers are always in search of newer, more effective but safer alternatives. *Rasaushadhis* are having quick and better effect than herbal

medicines with minimum dosage and without unpleasant taste. So these medicines can be a better solution.

In *Rasashastra* *Hartal* is categorized under *Uparas*. *Hartal* having chemical formula As_2S_3 . While mentioning its uses it is stated in *Rasa Ratna Samucchay 3/68*, that when *Hartal* is used in a single drug form it does *haran of stri pushpa i.e. menstruation*. So the interpretation can be drawn that it must be having some anti proliferative action, and to check the rationally behind this hypothesis this perticular study was undertaken

Method :

Hartal sattvapatana :

The reference for Hartal *Shodhana* for this study was taken from RSS 3/74. While explaining shodhan procedures for Hartal R.R.S. has given many drugs which can be used alternatively. Out of these particularly Kushmanda and Triphala were selected. Sattvapattana is an important process described by ancient RasaAcharyas to extract purest form of various *rasadravyas*. *Sattva* bears more potency than *bhasma*. *Hartal Sattvapattana* was performed by reference R.R.S. 3/81,82,83.

Cell line study :

The cell line study was conducted at Tata Cancer Research Centre, Kharghar. For this study two Human breast carcinoma cell line were selected i.e. MDA-MB-435, MCF-7. MDA-MB-435 is a triple negative cell line while MCF-7 is a ER, PR positive but HER-2 Receptor negative cell line. Adriamycin which is proven anticancerous drug was used as standard drug. Triphala shodhit hartal sattva and kushmanda shodhit hartal sattva was compared.

The dose was increased from 10 microgram to 80 microgram for each of three compounds and the experiment was repeated for three times. Observations were noted. Average of three was drawn and plotted on a graph.

Observation and Results :

	Drug concentrations (µg/ml) calculated from graph		
MDA-MB-435	LC50	TGI	GI50*
HAR-K	>80	>80	>80
HAR-T	>80	>80	56.4
ADR	NE	<10	<10

Table 1

	Drug concentrations (µg/ml) calculated from graph		
MCF-7	LC50	TGI	GI50*
HAR-K	NE	NE	NE
HAR-T	>80	67.4	<10
ADR	>80	<10	<10

Table 2

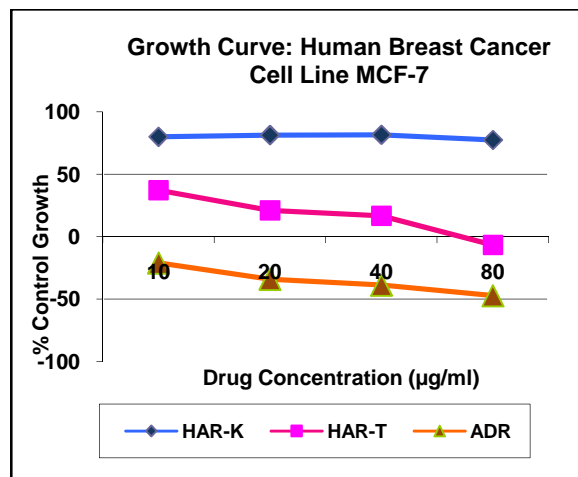


Figure 1

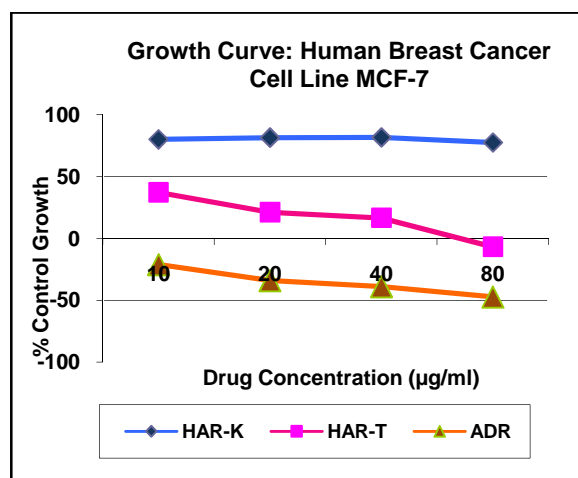


Figure 2

Discussion :

This experimental study has given scientific evidence in favour of our hypothesis that, Hartal Sattva does cause antiproliferative action on cell lining of breast carcinoma. This study was conducted in vitro manner and to proceed for in vivo study first step would be its toxicological study. The next step would be in vivo study i.e. animal experimental study. In this particular study Kushamanda shodhit Hartal has not shown desired effect but the study was conducted on two human breast cancer cell line but there are many other cell lines which can be studied for the same.

For this study, dose used was increased from 10 micro gram/ ml to 80 micro gram/ ml on this dose kushmanda shodhit hartal has not shown antiproliferative action but at the same time it also proved to have atlist static action so further study in this regard can be undertaken where either we can increase the dose and then see the effect or we can conduct a study on static effect. This same Hartal

sattva can be studied for its anti cancerous effect on other cell lines like uterine cancer cell lines. Shodhan dravya for Hartal can be changed and then again the study can be carried out for other cancer cell line like colon cancer, prostate cancer, melanoma and so on.

Conclusion :

On basis of cell line study conducted on MCF-7 cell line it is concluded that Triphala shodhit hartal sattva is active on human breast cancer cell line. Kushmanda shodhit Hartal sattva hasn't shown anti proliferative activity on MCF-7 human breast carcinoma cell line.

On basis of cell line study conducted on MDA-MB-435 cell line it is concluded that Triphala shodhit hartal sattva and Kushmanda shodhit Hartal sattva is not active on human breast cancer cell line.

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