

IS TECHNOLOGICALLY ADVANCED FOOD, ONE OF THE CAUSES OF INFERTILITY?

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ABSTRACT

Infertility refers to the biological inability of an individual to contribute to conception, or to a female who cannot carry a pregnancy to full term. Infertility refers to a couple that has failed to conceive after 12 months of regular sexual intercourse without the use of contraception. The reasons for infertility can involve one or both partners.

In *Charak samhita* it is said that *rutu* (season/menstrual period), *kshetra* (female reproductive system), *ambu* (amniotic fluid/nutrition from mother), *beej* (sperms and ovum) are four factors necessary for *garbhadharana* (conception). To maintain these four factors *dosh*, *dhatu* should be in equilibrium. *Aahar* (food/diet) is one of the main factors to keep *dosh* and *dhatu* in proper condition. *Aahar* (food/diet) gets converted into *rasa* and this *rasa* provides nutrition to other *dhatu*. So *aahar* (food/diet) should be of good quality.

Many foods consumed today are either genetically modified whole foods, or contain ingredients derived from gene modification technology. Genetic engineering of food is the science which involves deliberate modification of the genetic material of plants or animals. A number of commercialized, genetically engineered varieties, most notably rice, maize and soybean, papaya, etc. were created using this technology, and at present the traits introduced are herbicide and/or pest tolerance. Despite the potential benefits of genetic engineering of foods, the technology is surrounded by controversy.

So the paper will emphasis 5 types of technologically advanced foods, their appropriate etiopathogenesis with the view of *ayurvedic* basic principles. It will review how these technologically advanced foods vitiate the *dhatu*s. This concept will be explained with *ayurvedic* principles like *samanya vishesh siddhanta*, *gramyaahar*, *asatmyaahar*, *virudhaahar*.

Key words – Infertility, technologically advanced food, *Aahar* (Food), *Ayurvedic* basic principles.

INTRODUCTION

The World Health Organization defines infertility as; Infertility is “a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.”¹ According to recent studies by World Health Organization approximately 8-10 % of couples are facing some kind of

infertility problem. Globally this means that 60-80 million people are facing the problem. There are many causes of Infertility related to male, female, both or unknown. According to study in United Kingdom 30% causes due to female factor, 30% due to male factor, 10% due to both and 25% unexplained reason and 5 % other.²

According to *Ayurveda*, preparing for conception can be easily compared to the process of farming. Just like the health of a crop depends on the quality of soil, seed, timing of sowing, and amount of watering it gets³ the health of a baby depends on the health of its parents. For a pregnancy to be healthy and successful, a couple needs to take care of the following four essential factors sperm/ovum (seeds), uterus (soil), nourishment (water), time for conception (timing of Sowing).⁴ If one or more than one factor get affected it leads to infertility (*vandhyatva*). Thus for maintaining the body equilibrium the food should be healthy. The agriculture industry has traditionally been supportive of technological advancement, particularly in the field of genetic crop improvement.

Objectives:

To study and evaluate the adverse effects of technologically advanced food on human body especially reproductive system of both female and male with the help of *ayurvedic* basic principles.

Material and Methodology:

The study of technologically advanced food such as genetically modified food, hybridized food, pesticides, hormone induced milk; seedless fruits were done from text and available material from internet. The study of infertility and related concepts was done from all available *ayurvedic* texts such as *charaka samhita*, *sushruta samhita*, *Ashtang hruday*, etc.

Using basic principles from *Ayurvedic* texts such as *hetu*, *samanya vishesh siddhanta*, *asatmyaahaar*, *gramyaahaar*, *virudhaahaar*, *dooshivisha*. The effects of technologically advanced food on infertility were compared.

OBSERVATION:

Reproductive health, in men depends on the health of the *shukra dhatu* and in women *artava*. The *shukra* is created as part of

a long chain⁵ of metabolic transformations. It starts with the digestion of food, then goes on to transformation of food to nutrient fluid, blood, muscle, fat, bone, bone marrow, and finally, to *shukra dhatu* (sperms) in men and *artava* (endometrium and ovum) in women.⁶ Healthy *shukra dhatu* and *artava* then, according to *Ayurveda*, depends on the good quality of food. Good quality of food means food having proper color, taste, smell and texture, the food which provides strength to body constitutions⁷. The food which is opposite of above mentioned quality is harmful.⁸ The good quality of food increase strength provides nutrition to *dhatu* also provides energy to the body.⁹ The good quality of food keeps equilibrium of *dosha* and *dhatu* while low quality of food creates diseases.¹⁰ Many foods consumed today are either genetically modified (GM) whole foods, or contain ingredients derived from gene modification technology.¹¹ In genetic modification (or engineering) of food plants, scientists remove one or more genes from the DNA of another organism, such as a bacterium, virus, or animal, and “recombine” them into the DNA of the plant they want to alter.¹² By adding these new genes, genetic engineers hope the plant will express the traits associated with the genes. For example, genetic engineers have transferred genes from a bacterium known as *Bacillus thuringiensis* or Bt into the DNA of corn. Bt genes express a protein that kills insects, and transferring the genes allows the corn to produce its own pesticide.¹³ One of the main observations with genetic engineering is that the process of inserting genes into the DNA of a food plant is random; scientists have no idea where the genes go.¹⁴ This can disrupt the functioning of other genes and create novel proteins that have never been in the food supply and could create toxins and allergens in foods.¹⁵ The majority of corn, soybeans, cotton, canola, sugar beets,

papaya, potatoes, tomato, etc. grown are genetically modified food.¹⁶

To increase the quantity of milk Cows are given rBGH (recombinant bovine growth hormone).¹⁷To induced lactation of non-pregnant cows hormones are given. Mutant genetically modified cloned cow's milk is available in market.¹⁸ A hybrid is a cross between two different plant varieties to get the valued attributes of each variety. Most modern plants currently on sale are hybrids. Because they are a cross between varieties, the seed produced by hybrids will not grow true to seed. Some common hybrid fruits are: grapefruit, lemon, orange, pineapple, and apple, Common hybrid vegetables include: beets, carrots, corn, potatoes, Common hybrid nuts and seeds include: cashews, oats, rice, and wheat.¹⁹

A seedless fruit is a fruit developed to possess no mature seeds. The term "seedless fruit" is biologically somewhat contradictory, since fruits are usually defined (in a botanical sense) as mature ovaries containing seeds. Common varieties of seedless fruits include watermelons, tomatoes, grapes and bananas. Additionally, there are numerous seedless citrus fruits, such as oranges, lemons and limes.²⁰

Whether the pesticide is sprayed on the crop or genetically engineered into the crop it will eventually end up in the blood stream.²¹According to CDC (centers for disease control), US; pesticides hinder neurological and reproductive development.²²

DISCUSSION:

In *Charaka samhita nidansthan* it is said that one *hetu* (cause of disease) can cause many diseases, one *hetu* causes one disease, many *hetu* cause one disease and many *hetus* can cause many diseases.²³There are many causes of infertility. Genetically modified food can be one of the causes of infertility. It can be explained with some basic principles of

*Ayurveda.Samanya vishesh siddhanta*²⁴, it says that whatever we eat its conversion has similar characteristics of that food. Seeds which cannot regenerate the plant cannot produce good quality of *shukra dhatu*. Milk has tendency to produce *shukra dhatu*.²⁵ Harmonized/unnatural milk produces defected *shukra dhatu*. Food is converted into *aaharras*, which produces *rasadi dhatu*.²⁶*Raja updhatu* produced from *rasa*.²⁷ Due to unnatural diet *aaharras* gets affected causing defected *rasadi dhatu*, *raja*, and thus leads to infertility. Hormonal imbalance affects the ovulation process in female. This food is *asatmya* to human body, which causes *asatmyaja vikar*. Infertility is one of the *asatmyaja vikar*.²⁸*Gramyaahar* is low quality of food, it aggravates all *doshas*, thus it affects the *dhatu*s like *rakta*(blood) and *mansa* (muscles).Due to *gramyaahar doshas* get accumulated in the body affecting the strength of *dhatu*s. *Gramyaahar* affects physically as well as mentally. It causes depression, anxiety, pessimism²⁹. It flaccid the muscles in the body, affects the ejaculation which leads to infertility. Genetically modified food may acts as *gramyaahar*. *Virudhaahar* causes infertility, affects fetal development leading to abortion.³⁰*Virudhaahar* aggravates the *doshas* in body but not remove it from body.³¹In *Charak samhita* 18 types of *virudhaahar* has mention. Genetically modified food may acts as *Satmyavirudha* that means the food consumed is not suitable to body constitution. *Sampadvirudha* this means this type of food is low quality food. The first disease mention in list of diseases due to *virudhaahar* is *shandhya* (infertility).³²Genetically modified food may acts as *virudhaahar*. *Dooshivisha* directly affects the *shukra dhatu*.³³Pesticides act as *dooshivisha* in human body.

In *Charak samhita* it is said that only good quality of food is responsible for growth

of human being and low quality of food cause diseases.³⁴

CONCLUSION:

From all these basic principles we can say that due to *asatmya* nature of technologically advanced food, it vitiates *doshas*, *dhatu*s and becomes the cause of *dhatu dooshti* leading to various etiopathological conditions leading to infertility. Hence, this technologically advanced food directly or indirectly causes infertility. This type of food is not good for the health of human. So we should reduce the use of such type of food and should use the food which is organic.

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