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Significance of Traditional Diets on Environmental Foot Prints

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Abstract

Environmental issue is extremely prevalent in the present urbanization phase that is accountable for causing the destruction and damage to the lives of flora, fauna, microorganisms and especially human beings which in turn is liable for higher morbidity and mortality rates. Keeping this environmental issue in view, we aimed to assess the significance of various food products illustrated in the Holy Book, Bhagavad Gita ages back on the environmental foot prints. Facts and features about different types of dietary products and their impact on environmental health were searched using data bases like Google scholar, Google, PubMed, Medline, etc. These databases were used so as to ascertain the environmental importance of these dietary products in current modernity phase. Scientific studies reported that food products under Sattvic diet has the functional ability of using scarce amount of natural resources and emitting less greenhouse gases whereas Rajasic and Tamasic dietary products are degradable for environment as it produces harmful and toxic gases. It has been deduced that these traditional diets mentioned in Bhagavad Gita ages back have been scientifically applicable and functional in current westernization phase which has helped in regulating the environmental problem by decreasing the environmental foot prints.

Keywords: *Bhagavad Gita, environmental foot prints, sattvic diet, rajasic diet and tamasic diet*

Introduction

Environmental deterioration is a condition where natural resources are decomposed and decayed which is responsible for causing the wildlife eradication, biodiversity depletion, wrecking of habitat and ecosystem, etc. Gluttony of natural resources compromise the ecological and social needs which brings down the effective ecosystem services by increasing the incidence of natural hazards like floods, landslides, disasters,

etc sequentially decaying and degrading the Mother nature at massive extent. This environmental complication has become extremely ubiquitous in the world and has outreached to a peek where lives of lives of flora, fauna, microorganisms and humans are destructed by causing vandalization to crops and trees, agriculture produce, bacterial growth, respiratory system, reproductive system, neurological systems, immune system, endocrine system, etc which successively is blameworthy for elevated morbidity and mortality rates[1,2]. Food system has a huge impact on global climatic change by negatively affecting the environmental health and causing variant health issues. Each and every step of food system like agriculture production, processing, transportation, preparation, consumption and dumping, etc unfavorably strike the climatic condition by producing and magnifying the greenhouse gases like carbon dioxide, methane, nitrous oxide, etc in the environment which is at the bottom of absorbing the heat radiations and upraising the temperature. Keeping this pathetic condition in view, usage and application of environmental foot prints have become extremely indispensable so as to determine the impact of different dietary based products on environmental condition and health.

Environmental foot print is defined as ecological assets used by cropland, grazing land, fishing, grounds, forest area, etc to assess the production and usage of natural resources and emission or absorption of waste products which is a decisive factor for flourished or deleterious environmental condition[3,4].

Keeping the pervasive environmental degradation in view, a review study was conducted to portray and deliver the scientific importance of decreased environmental foot prints. Significance of various dietary products illustrated in the Holy Book, Bhagavad Gita ages back was scientifically assessed on the environmental foot prints. The study aimed to highlight that food products mentioned in Bhagavad Gita anciently, are scientifically functional in present modernity phase also.

Materials and Methods

A review of research was conducted where facts and details related to dietary based products were explored from official religious websites, blogs, religion aiding institutes and several scientific articles. Environmental foot print of these food products were highlighted and explained. To scientifically proven their reliable impacts, several research and review studies using data bases like Google scholar, Google, PubMed, Medline, Scopus, Science Direct, Cochrane, Directory of Open Access were collected and used so as to determine environmental significance of these traditional dietary products in current urbanization phase which has been

illustrated in Bhagavad Gita ages back. Chapter 12 verses 13-14, chapter 17 verses 8, chapter 17 verses 9, chapter 17 verses 10have been purposely selected for the review study as these depict the different types of traditional diets and its impact on sustainable health.

Results and Discussion

Bhagavad Gita has made justification by distincting food into three different traditional dietary based products.

Sattvic food

As per chapter 17 verses 8, *sattvic* dietary food represent pure plant based food which is chargeable for lessening the environmental freight as this diet uses less crop land, nitrogenous fertilizer, irrigation water, graze field, etc which in turn produces bare greenhouse gases like carbon dioxide, methane, ozone, chloroflouro carbon, nitrous oxide, etc in the environment and absorbs maximum

TABLE I

Environmental Foot Print of *Sattvic* Dietary Based Products

Enviornmental foot prints outcomes

- Reduction in GHGa emission by 70%--decreased CO2, methane emission which reduced mortality by 10%[7,8].
- Substituting beef with legume reduced GHG by 46-74% and decreased Co2 emissions by 61%[9].
- Production of sattvic food has less natural resources usage and lessened emission of CO2, methane, nitrous oxide by 61%[10].
- Agriculture production also succors in the removal of 98.3 billion of CO2 from environment[11].
- These plant based products bear less usage of irrigation, cropland and nitrogen from fertilizer[12].
- Plant based meat like spicy black bean burger, roasted garlic and quinoa burger, grillers crumbles, etc have the potential to reduce the land use(m2-y/kg) by 97%, 93%, 99% respectively, produced lessened CO_2 emission (kg-CO2-eq/kg) by 85, 88 and 90% respectively, decreased the use of water by 96, 98 and 96% respectively which have the functional ability to decrease the process of eutrophication by 76% and 73%[13,14].
- This dietary based product has helped in preserving the water resources as the production of 1 pound of wheat require only 25 gallons of water whereas product of 1 pound of meat requires 2400 gallon of water[15].
- Feeding of livestock destroyed the amazon forest whereas vegan plant based diet has protected the natural diversity[16].
- Vegan diet releases less methane and nitrous oxide which in turn helps in reducing the earth temperature. This diet releases only 2-3 kg of carbon dioxide in environment, representing low carbon foot print[17,18].

On producing Sattvic plant based diet, these natural altered activities have helped in reducing the environmental foot prints which has an immense role in protecting the planet.

Type of study- Review articles, research reports, meta-analysis, systematic review, article report, etc

[a]Green house gas emission

amount of carbon dioxide from environment which has a beneficial and sustainable environmental impact. Regular and frequent intake of *sattvic* food products aid in lessening the process of degradation of quality of water which generates depleted dissolved oxygen in water surfaces and this process is highlighted by the term "eutrophication". These altered activities sequentially reduce the environmental foot prints which has eminent role in positively modifying the climatic change by protecting the planet. Hence, it has been derived that *Sattvic* based food products have a viable effect on environment by shrinking the environmental foot prints[5,6]. (Table I).

Rajasic and Tamasic food

Intake of *rajasic and tamasic* dietary based products are chargeable for degrading the environmental health by causing environmental pollution. Agriculture

TABLE II

Environmental Foot Print of Rajasic and Tamasic Dietary Based Products

Environmental foot prints outcomes
- Rajasic and tamasic food production elevates the GHG by 30%[23].
- These food products increased water usage by 70% and upraised cultivable land by one third proportion[23].
- 88% of GHG was released on animal products generated farms, 14-51% of anthropogenic GHG emission derived from milk, dairy products and animal fat which have the usage of half of ice-free land area of earth leading to habitat and species destruction[24].
- Livestock and feed crop production of these dietary food have caused 87% of land use and 44% of land deterioration[24].
- 500-2000L of water is required per kg for production of rajasic food[24].
- Animal protein needs 100 times more water than of whole grains or pulses[25].
- Agriculture practices of rajasic and tamasic diet products have caused the water pollution by degrading the surface and ground water surfaces, water logging and salinization of soils, etc, thus ruining the eutrophication process by 50%[26].
- 78% of global ocean and fresh water eutrophication is caused by agriculture production of tamasic food and its agriculture production also causes 50% of land use, 26% of GHG emission and 70% of global fresh water usage, etc[27].
- Agriculture, processing, waste, retail, transport and household use of these traditional diets adversely impact the environment by high GHG emissions like CO_2, nitrous oxides, etc. Extensive packaging of food items causes severe waste production[28].
- Tobacco plants require large amount of chemicals which is linked with the land degradation in the form of soil erosion, lessened soil fertility and productivity[29].
- Alcoholic beverages release GHG emission in the range of 0.73-2.38 kg CO_2 per litre[30].

Type of study- Article report, review articles, systematic review, meta analysis, research studies, observational study, etc.

[a]Bisphenol A: industrial chemical used in making plastics and resins.

farming of these diets consumes maximum generated farms, more chemicals like nitrogenous fertilizer, using more of ground and water surfaces, etc which is accountable in producing abundant greenhouse gases like carbon dioxide, methane, ozone, etc in the environment and thus ruining the climatic condition. Carbon foot prints of *rajasic* and *tamasic* food were scientifically found to be severely high. Farming of these dietary products have even ruined and elevated the eutrophication where quality of ground and surface water is degraded. Soil fertility has also affected leading to soil erosion, habitat destruction and species extinction which in turn has affected the Mother nature activities and elevated the GHG emission. These refined activities sequentially are liable for decaying the climatic change by exposing the vulnerability of planet which automatically derives that *rajasic* and *tamasic* diets have unfavorable impact on environment by increasing the environmental freight and upraising the environmental foot prints[21-23].

To scientifically demonstrate, several research and review studies are highlighted in Table II to determine the unfavorable impact of *rajasic* and *tamasic* dietary products on environmental foot prints.

Thus, it has been outlined and portrayed that replacing the *Rajasic or Tamasic food based products* with the *Sattvic* diet in current modernity phase succors in reducing the issue of dyslipidemia but the severity of environmental complication has also been narrowed.

Conclusion

Environmental importance of traditional *sattvic, rajasic and tamasic* food products illustrated and represented in Bhagavad Gita have been elucidated by representing that *Sattvic* food has an eminent role in utilizing less natural resources and therefore emitting restricted greenhouse gases. This is accountable for improving the environmental pollution which has helped in decreasing the environmental foot prints. *Rajasic* and *Tamasic* dietary products have a pessimistic impact on environment by surging the greenhouse gases emission and exploiting maximum natural resources. This sequentially fabricates the environmental load by inflating the environmental foot prints.

It has been concluded that these traditional diets mentioned in Holy Book, *Bhagavad Gita* ages back have been scientifically applicable and functional in current westernization phase also. So, incorporating the *Sattvic* and neglecting the *Rajasic or Tamasic* food products as per depicted in *Bhagavad Gita* aids the population in ameliorating the derelict environmental health by making the human body free from environmental pollutants and thus, getting in around to a harmonious body and mind.

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