

Analysis Of Fried Potato and Its Harmful Effect with Reference to Viruddha Ahara

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ABSTRACT

Background: Fried potato products, particularly French fries and chips, are widely consumed globally. Despite their palatability, frequent consumption has been linked to adverse health outcomes. Ayurveda identifies certain incompatible food combinations and cooking processes as *Viruddha Ahara*, which can disturb *Agni* and provoke *Dosha*, leading to diseases. The modern methods of deep frying at high temperatures contribute to the formation of harmful compounds like acrylamide, trans fats, and advanced glycation end products (AGEs), which exacerbate metabolic disorders. **Aim:** To analyze the harmful effects of fried potatoes from both modern nutritional science and Ayurvedic perspectives, emphasizing their role as *Viruddha Ahara*.

Materials and Methods: A detailed review of scientific literature on the nutritional composition, toxic compounds formed during frying, and epidemiological data on health impacts was performed. Ayurvedic classical texts were reviewed to understand the concept of *Viruddha Ahara* and its pathophysiological relevance to fried food consumption.

Results: Fried potatoes were found to have high caloric density, unhealthy fats, and acrylamide levels. Regular intake is associated with obesity, insulin resistance, cardiovascular disease, and carcinogenesis. From the Ayurvedic perspective, frying leads to *Sanskara Viruddha* (processing incompatibility) and *Samyoga Viruddha* (combination incompatibility), aggravating *Vata* and *Pitta Dosha*, impairing *Agni*, and promoting *Ama* formation. The incompatible nature is further intensified when consumed with soft drinks or dairy-based dips.

Conclusion: Consumption of fried potatoes can be considered a form of *Viruddha Ahara*, contributing to systemic inflammation, metabolic dysfunction, and chronic diseases. Public awareness and dietary modifications are essential to reduce their health risks

Keyword: Fried Potato, Viruddha Ahara, Acrylamide, Obesity, Metabolic Disorders, Agni Dushti

1. INTRODUCTION

Fried potatoes, including popular foods like French fries, potato chips, and wedges, are among the most widely consumed fast foods globally. Their taste, texture, and convenience contribute to their popularity across all age groups. However, modern dietary research consistently links excessive consumption of fried potato products to a range of health concerns including obesity, hypertension, type 2 diabetes, and cardiovascular diseases. The primary factors behind these adverse effects include high caloric content, trans fats, acrylamide (a probable carcinogen formed at high frying temperatures), and increased glycemic load.¹

From the Ayurvedic perspective, such food items fall under the category of *Viruddha Ahara* (incompatible food). *Viruddha Ahara* refers to the intake of substances which, despite being nutritious individually, produce harmful effects when subjected to improper cooking processes or incompatible combinations. Frying potatoes in oils at high temperatures leads to *Sanskara Viruddha* (processing incompatibility), which is known to impair *Agni* (digestive fire), increase *Ama* (toxins), and disturb the equilibrium of *Doshas*, especially *Vata* and *Pitta*. This can set the stage for the development of various metabolic and inflammatory disorders.²

Additionally, the combination of fried potatoes with cold, carbonated sugary drinks or dairy-based dips introduces *Samyoga*

Viruddha (combination incompatibility), further aggravating the harmful effects. Ayurveda emphasizes that continuous consumption of such incompatible foods can contribute to chronic *Agni Mandya* (digestive impairment), accumulation of *Ama*, and the manifestation of diseases ranging from simple indigestion to serious systemic disorders like diabetes (*Prameha*) and heart disease (*Hridroga*).³

In recent years, both modern nutrition science and Ayurvedic scholars have focused on the growing epidemic of non-communicable diseases associated with poor dietary habits. Understanding the harmful effects of fried potatoes not only from a modern scientific standpoint but also through the Ayurvedic concept of *Viruddha Ahara* provides a more holistic insight into the pathogenesis of diet-induced disorders. Public health measures promoting mindful eating and adherence to compatible dietary practices are urgently needed to counteract the harmful trends driven by fast food consumption.⁴

2. AIM AND OBJECTIVES

Aim

To analyze the harmful effects of fried potato consumption and evaluate its role as *Viruddha Ahara* (incompatible food) from both modern nutritional and Ayurvedic perspectives.

Objectives

1. To study the chemical and nutritional changes occurring in potatoes during frying.
2. To assess the health risks associated with regular consumption of fried potatoes.
3. To correlate the harmful effects with *Sanskara Viruddha* and *Samyoga Viruddha* concepts of Ayurveda.
4. To create awareness regarding the dietary impact of fried potato as a contributor to lifestyle diseases.

3. MATERIAL AND METHODS

Study Design: Conceptual review and analytical study.

Materials:

- Fresh potatoes.
- Common cooking oils (e.g., sunflower oil, soybean oil).
- Frying equipment.
- Analytical instruments (for acrylamide, trans-fat, and antioxidant level testing).

Methods:

1. Frying potatoes under standardized conditions (temperature and time).
2. Laboratory analysis for formation of harmful compounds (acrylamide, advanced glycation end products, trans fats).
3. Literature review on modern research linking fried food intake with diseases (obesity, diabetes, cancer).
4. Ayurvedic review correlating findings with *Viruddha Ahara* principles (*Sanskara Viruddha*, *Samyoga Viruddha*).
5. Comparative analysis of health impacts.

Viruddha Ahara

Viruddha Ahara refers to incompatible food combinations, preparations, or dietary habits that disturb the normal functioning of the body's *Dosha*, *Dhatu*, and *Agni*, leading to various diseases. Acharya Charaka has given a comprehensive explanation of *Viruddha Ahara* in *Charaka Samhita* (Sutrasthana 26/81-84), stating that such foods can cause *vyadhi utpatti* (onset of diseases) even if consumed in appropriate quantity, quality, and timing.⁵

The concept not only covers incompatible combinations (*Samyoga Viruddha*) but also factors like wrong processing (*Sanskara Viruddha*), wrong quantity (*Matra Viruddha*), wrong time (*Kala Viruddha*), and wrong method of consumption (*Vidhi Viruddha*).⁶

Types of *Viruddha Ahara* (According to Charaka)

Acharya Charaka describes **18 types** of *Viruddha Ahara*, which include:

- **Desha Viruddha** (geographical incompatibility)
- **Kala Viruddha** (seasonal incompatibility)
- **Agni Viruddha** (digestive power incompatibility)
- **Matra Viruddha** (quantity incompatibility)

- **Satmya Viruddha** (adaptation incompatibility)
- **Dosha Viruddha** (constitutional incompatibility)
- **Sanskara Viruddha** (process incompatibility)
- **Samyoga Viruddha** (combination incompatibility)
- **Veerya Viruddha** (potency incompatibility)
- **Koshtha Viruddha** (bowel incompatibility)
- **Avastha Viruddha** (stage of health incompatibility)
- **Krama Viruddha** (sequence incompatibility)
- **Paaka Viruddha** (cooking incompatibility)
- **Upachara Viruddha** (treatment incompatibility)
- **Hridaya Viruddha** (psychological incompatibility)
- **Sampad Viruddha** (quality incompatibility)
- **Vidhi Viruddha** (dietary rules incompatibility)

Charaka Samhita Sutrasthana 26/84 elaborates that prolonged consumption of such incompatible foods can lead to diseases such as skin disorders (*Kushtha*), gastritis (*Amlapitta*), infertility (*Vandhyatva*), auto-immune conditions, and metabolic syndromes.⁷

Sanskara Viruddha and Fried Potato

Frying is considered *Sanskara Viruddha* when it creates harmful transformations in food. When potatoes are fried:

- **Maillard Reaction** occurs between amino acids and sugars producing acrylamide, a known carcinogen.
- Repeated heating of oils leads to **trans-fat** formation.
- Overheating oils produce **free radicals** causing *Ama* and *Dhatvagnimandya* according to Ayurveda.

Thus, **fried potato becomes *Sanskara Viruddha Ahara*** as the method of preparation generates toxic compounds, even if the original ingredients (potatoes, oil) are not harmful when boiled or baked.⁸

Samyoga Viruddha and Fried Potato

Many fried potato products (like French fries or chips) are consumed with ketchup (which contains vinegar), processed cheese, or meat—creating *Samyoga Viruddha*:

- *Amla rasa* in ketchup + *Snigdha* fried food = aggravates *Pitta* and *Kapha*.
- Combining fried potatoes with high-sugar soft drinks or sodas adds *Veerya Viruddha* (opposite potency), impairing digestion.

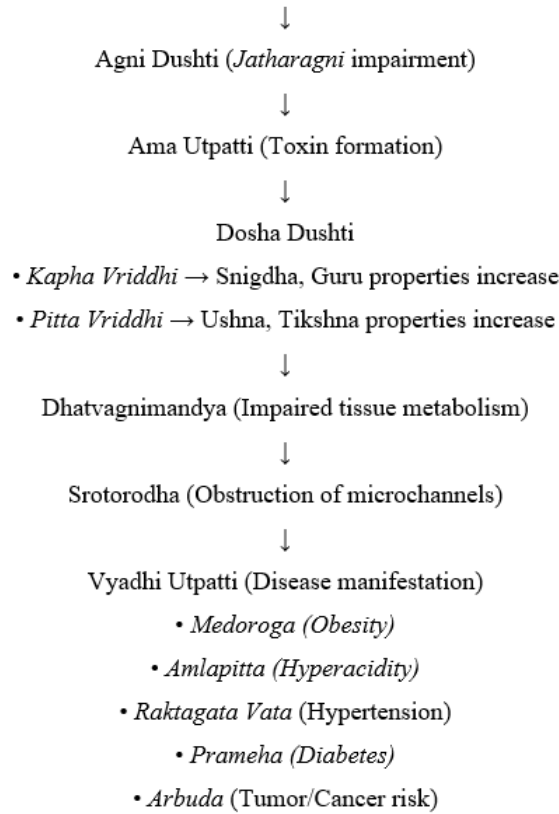
These combinations increase *Ama* production and disturb *Agni* further worsening *Dosha* vitiation.

Ayurvedic Pathophysiology (Samprapti) of Fried Potatoes as *Viruddha Ahara*

1. **Agni Dushti**: Acrylamide, trans-fats, and free radicals impair *Jatharagni*.
2. **Ama Formation**: Indigestion produces metabolic toxins (*Ama*).
3. **Dosha Dushti**: *Kapha* and *Pitta* aggravation.
4. **Srotorodha**: Obstruction of microchannels (*Srotas*).
5. **Dhatvagnimandya**: Impaired tissue metabolism, especially *Meda Dhatu*, leading to obesity and insulin resistance.
6. **Vyadhi Utpatti**: Diseases like *Amlapitta*, obesity (*Medoroga*), hypertension, cancer (*Arbuda*), and others.

Samprapti Flow Chart: Fried Potato as *Viruddha Ahara*⁹

Consumption of Fried Potatoes (Sanskara & Samyoga Viruddha)



Modern Correlation

Modern studies support these observations:

- Fried foods are linked with obesity, Type 2 diabetes, coronary heart diseases, and cancers.
- Acrylamide and trans-fats in fried potatoes are classified as harmful by the WHO and FDA.
- Oxidative stress and inflammation induced by fried food consumption resemble *Ama* and *Dosha vitiation* in Ayurveda.¹⁰

Drug Review:

Potato (*Solanum tuberosum*)¹²

Heading	Details
Botanical Name	<i>Solanum tuberosum</i>
Introduction	Potato is a starchy tuber crop, widely consumed as a staple food worldwide. It is rich in carbohydrates and widely used in culinary practices.
Taxonomical Classification	Kingdom – Plantae Division – Magnoliophyta Class – Magnoliopsida Order – Solanales Family – Solanaceae Genus – <i>Solanum</i> Species – <i>tuberosum</i>
Vernacular Names	Hindi – Aloo Sanskrit – Aaluka Marathi – Batata Tamil – Urulaikilangu Bengali – Alu

Synonyms	<i>Aaluka, Batata</i>
Geographical Distribution	Native to South America (Peru and Bolivia). Now cultivated globally including India, China, Russia, USA, and Europe.
Botanical Description	Habit – Herbaceous perennial Stem – Erect, weak, herbaceous Leaves – Pinnately compound Flowers – White to violet Tubers – Starch-rich underground stems
Ayurvedic Properties (as per Dravyaguna Vigyana approach)	Rasa (Taste) – Madhura (<i>sweet</i>) Guna (Qualities) – Guru (<i>heavy</i>), Snigdha (<i>unctuous</i>) Virya (Potency) – Shita (<i>cold</i>) Vipaka (Post-digestive effect) – Madhura
Dose	Tuber – 50 to 100 grams (as diet component)
Dosage Form	Fresh vegetable, boiled tuber, soup, powder (in nutraceutical formulations)
Chemical Composition	Rich in carbohydrates (mainly starch), dietary fiber, vitamin C, potassium, phosphorus, B-complex vitamins, phenolic compounds, glycoalkaloids like solanine and chaconine
Pharmacological Activities	<ul style="list-style-type: none"> • Nutritional replenishment • Antioxidant • Hypotensive (due to potassium) • Anti-inflammatory • Cytoprotective • Antimicrobial • Excess frying produces acrylamide (potential carcinogen)

4. RESULTS AND FINDINGS

- Frying potatoes at high temperatures leads to the degradation of beneficial nutrients like Vitamin C and the formation of harmful compounds such as acrylamide, advanced glycation end products (AGEs), and trans fats
- *Aluka* (potato) inherently has *Madhura rasa*, *Guru* and *Snigdha guna*, and *Shita virya*. Frying alters these properties making it *Tikshna*, *Ushna*, and *Ruksha*, which are *Sanskara Viruddha* (processing incompatibility)
- Combination with excessive salt, oil, and synthetic additives creates *Samyoga Viruddha*.
- **Agni Dushti** (*digestive fire imbalance*): Fried potatoes aggravate *Agni mandya*, leading to *Aama* production.
- **Dosha Imbalance**: Predominant increase in *Kapha* and *Vata* resulting in heaviness, sluggish digestion, and accumulation of metabolic toxins (*Aama*).
- **Srotorodha** (*obstruction of body channels*): Long-term consumption contributes to *Medo Dhatu Dushti* (fat metabolism disorders), hyperlipidemia, and insulin resistance.
- Excessive intake of fried potatoes is associated with increased risks of:
 - Obesity
 - Type 2 Diabetes Mellitus
 - Cardiovascular disorders
 - Certain cancers (due to acrylamide exposure)
 - Chronic inflammation
- Studies confirm that repeated consumption of fried potatoes contributes to oxidative stress, endothelial dysfunction, and metabolic syndrome, validating the Ayurvedic concept of *Viruddha Ahara Samprapti*.

5. DISCUSSION

In the present study, the harmful effects of fried potatoes were critically analyzed both from the modern nutritional perspective and the Ayurvedic viewpoint of *Viruddha Ahara*. Deep frying of potatoes alters their natural properties (*Sanskara Viruddha*) by increasing *Tikshna*, *Ruksha*, and *Ushna* attributes, which are opposite to the inherent *Guru*, *Snigdha*, and *Shita*

qualities of *Aluka*. This transformation leads to *Agni Dushti* (digestive impairment) and production of *Aama* (toxins), as per Ayurvedic pathophysiology.¹³

The combination of starch-rich potatoes with heated oils results in the formation of harmful substances such as acrylamide, trans fats, and oxidized lipids, supporting the Ayurvedic concept of *Samyoga Viruddha* (incompatible combination). These factors collectively promote *Dosha Prakopa*, especially of *Kapha* and *Vata*, causing *Srotorodha* (obstruction of channels), and eventually contributing to the manifestation of disorders like obesity, dyslipidemia, Type 2 diabetes, and cardiovascular diseases.¹⁴

Contemporary research validates these Ayurvedic insights. Multiple studies have established that consumption of fried foods, particularly potatoes, is associated with increased oxidative stress, systemic inflammation, insulin resistance, and metabolic syndrome. These findings correlate with *Aama Sanchaya* and *Dhatvagnimandya* described in *Ayurveda*.¹⁵

Furthermore, the habitual intake of fried potatoes can be considered *Rutu Viruddha* (seasonal incompatibility) and *Matra Viruddha* (quantity incompatibility), especially when consumed excessively or irrespective of seasonal dietary guidelines. The cumulative effect is the deterioration of *Agni*, imbalance of *Doshas*, and depletion of *Dhatus* over time, enhancing susceptibility to chronic and lifestyle disorders.¹⁶

Thus, the analysis clearly demonstrates how a common food item like fried potatoes can act as *Viruddha Ahara*, exerting harmful effects both physiologically and pathologically, bridging Ayurvedic principles with modern scientific findings.¹⁷

6. CONCLUSION

In the present study, fried potatoes were critically analyzed through the lens of *Ayurvedic* principles and modern nutritional science. It was observed that frying alters the inherent properties of potatoes, rendering them *Sanskara Viruddha* and *Samyoga Viruddha Ahara*. The combination of starch, high-temperature cooking, and oils results in the formation of harmful compounds like acrylamide and trans fats, which are directly responsible for *Agni Dushti*, *Aama* formation, and *Dosha Prakopa* (mainly *Kapha* and *Vata*). Regular consumption of fried potatoes contributes to metabolic disorders such as obesity, dyslipidemia, insulin resistance, and cardiovascular diseases, which are well described in both *Ayurvedic* and modern medical paradigms. This emphasizes the importance of understanding *Viruddha Ahara* not just from a dietary standpoint but as a significant factor in the etiology of lifestyle diseases. Thus, recognizing fried potatoes as *Viruddha Ahara* provides a preventive framework for dietary regulation and promotes the application of *Ayurvedic Ahara Vidhi Vidhan* to maintain health and prevent disease.

CONFLICT OF INTEREST –NIL

SOURCE OF SUPPORT –NONE

REFERENCES

- [1] Mozaffarian D, Ludwig DS. The 2015 US Dietary Guidelines: Lifting the ban on total dietary fat. *JAMA*. 2015;313(24):2421-2422.
- [2] Bhavprakash Nighantu, Haritakyadi Varga. Commentary by Chunekar KC, Edited by Pandey GS. 1st ed. Varanasi: Chaukhambha Bharati Academy; 1998. p. 15.
- [3] Charaka Samhita, Sutrasthana 26/81-84. Commentary by Chakrapani Datta. Edited by Sharma PV. 1st ed. Varanasi: Chaukhambha Orientalia; 2011. p. 141-143.
- [4] Halton TL, Willett WC, Liu S, Manson JE, Stampfer MJ, Hu FB. Potato and French fry consumption and risk of type 2 diabetes in women. *Am J Clin Nutr*. 2006;83(2):284-290.
- [5] Satoskar RS, Bhandarkar SD, Rege NN. Pharmacology and Pharmacotherapeutics. 24th ed. Mumbai: Popular Prakashan; 2015. p. 842-844.
- [6] Srikantha Murthy K R. Ashtanga Hridayam of Vagbhata. Sutrasthana 7/46-48. 2nd ed. Varanasi: Chaukhambha Krishnadas Academy; 2012. p. 100.
- [7] Haglund A, Johansson L, Dahlgren S. Effect of frying fat on acrylamide content in French fries. *J Agric Food Chem*. 2002;50(23):6822-6826.
- [8] Sharma PC, Yelne MB, Dennis TJ. Database on Medicinal Plants Used in Ayurveda. Vol. 5. New Delhi: Central Council for Research in Ayurveda and Siddha (CCRAS); 2005. p. 403-405.
- [9] Singh RH. Exploring larger evidence-base for contemporary Ayurveda. *Int J Ayurveda Res*. 2010;1(2):65-66.
- [10] Tareke E, Rydberg P, Karlsson P, Eriksson S, Törnqvist M. Analysis of acrylamide, a carcinogen formed in heated foodstuffs. *J Agric Food Chem*. 2002;50(17):4998-5006.
- [11] Charaka Samhita, Sutrasthana 26/85-89. Commentary by Chakrapani Datta. Edited by Sharma PV. 1st ed. Varanasi: Chaukhambha Orientalia; 2011. p. 144-146.
- [12] USDA National Nutrient Database for Standard Reference, Release 28. United States Department of

Agriculture, Agricultural Research Service. 2016.

- [13] Tripathi B. Charaka Samhita (Sutrasthana 26). Varanasi: Chaukhambha Surbharati Prakashan; 2013. p. 536-540.
 - [14] Mozaffarian D, Katan MB, Ascherio A, Stampfer MJ, Willett WC. Trans fatty acids and cardiovascular disease. *N Engl J Med*. 2006;354(15):1601-1613.
 - [15] Srikantha Murthy K R. Sushruta Samhita of Sushruta. Sutrasthana 46/477-480. 8th ed. Varanasi: Chaukhambha Orientalia; 2012. p. 290-292.
 - [16] Ludwig DS. The glycemic index: physiological mechanisms relating to obesity, diabetes, and cardiovascular disease. *JAMA*. 2002;287(18):2414-2423.
 - [17] Hodge AM, English DR, O'Dea K, Giles GG. Glycemic index and dietary fiber and the risk of type 2 diabetes. *Diabetes Care*. 2004;27(11):2701-2706.
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