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# **Appetizer: A Food Category or Food Adjective?**

# **Review Article**

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#### Abstract

The term appetiser is referred to any food influencing the food intake initiation by sight or post consumption. Normally any food can be termed as appetising; however a small portion of food as pre-meal is an appetiser. These can be in ready-to-reconstitute, ready-to-eat or drink form and commercialised accordingly. Appetite is a psycho-physiological phenomenon involving several hormones with short term and long term roles in food intake regulation. Appetisers are useful for those suffering appetite losses. Spices and herbs are known to stimulate appetite and secretion of gastric juices due to pungent active components such as gingerol, capsaicin, piperine, carvacrol etc. A variety of appetisers based different active components from spices have been reported along with their beneficial effects. Market shelves may find a new category of food as appetisers in near future.

Keywords: Appetisers; Ginger; Spices; RTE; Hunger

#### Abbreviations

RTE: Ready to Eat; RTS: Ready to Serve; RTR: Ready to Reconstitute

#### Introduction

Appetisers are a small portion of a food or drink served before or at the beginning of a meal to stimulate the desire to eat [1]. Its consumption is quite often when visiting restaurants. Certain other occasions; appetizer can be used as adjective to any food for mentioning/describing its flavor. One more term used for appetizing as ambrosial meaning delicious to taste and smell. The tantalizing smell of the ambrosial biryani wafted into the living room from the kitchen. I could not resist myself due to the mouth-watering smell of ambrosial paani-puri while standing near the stall. Though the appetizers are used as adjective, appetizer is a food category with respect to food technology, hoteling and medicine fields. Scientifically, appetite, a psycho-physiological phenomenon of human nutrition can be simply referred as urge to seek and consume specific food. The neurophysiologic aspects such as brain centre, hypothalamus, different hormones and adipose tissue etc. have specific roles in appetite expression and its regulation. The food intake and satiety as well as the physiological state of the person are responsible for appetite expression. Appetite is expressed as the tendency to

seek food and consume it [2]. The daily food consumption varies quantitatively and qualitatively in terms of calories, indicating the variation in calorific intake of an individual. Even then the almost stable body weight in adults is the result of metabolic changes after food consumption and the energy expenditure and storage by human body. The energy expenditure and the body mass composition are two of the major factors deciding the amount of food consumed by an individual. However, the human constitutional composition makes the difference for Body Mass Index (BMI). The energy requirement of an adult male in normal conditions with moderate activities is 3000 Kcal/day and excessively active male requires 4000 Kcal/day. Similarly for females it varies between 2000-3000 Kcal/day [3]. The geographical conditions, climatic conditions, physiological state of the individual, psychological status and the type and time of food consumption are several other factors deciding the energy requirement as well as the amount of food consumed by an individual. Hunger is a subjective expression of willingness/motivation to eat; whereas appetite is defined as the process that leads to the qualitative selection and quantitative ingestion of specific foods. Satiety is referred to those events arising from food consumption that serve to suppress hunger or the urge to eat and inhibit eating for a particular period of time, whereas the satiation is regarded as the complex of processes that brings eating to a halt or causes meal termination [2].

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Hence; the process of satiation or satiety has lesser role in expression of appetite compared to expression of hunger. The word appetiser is not only the adjective but a separate category of food type wherein lot of innovations and research is happening with evolving markets of processed foods and catering/hotel industry.

#### **Hunger and Appetite**

How do we differentiate hunger and appetite? Hunger is often considered as an unpleasant sensation that compels a person to seek and eat food. It is a physiological condition associated with contraction of stomach. This most commonly perceived hunger signals originate in the stomach where electrical (vagus nerve) signals relate the state of emptiness (or fullness), reinforced by the secretion of the hormone, ghrelin and by metabolic signals such as blood glucose (hypoglycaemia) [4,5].

On the other hand, appetite in many people can be a pleasant sensation that causes a person to desire and anticipate food. It also has physiological components controlled hormonally, but it is basically a psychological state. It is less easily localized than hunger, is often felt in mouth or palate. It depends more on odour or flavour and the pleasant memory of food [6].

Appetite is clearly a distinct sensation from hunger: a person may express appetite for some particular food at the end of the dinner when he is comfortably replete. There are peripheral, cognitive and metabolic factors which play role in appetite expression and regulation. The peripheral and cognitive factors include the sight (appearance), touch (hand-feel or texture), aroma (odour) and appealing arrangement of the food and memory of the taste or flavour of a food also stimulate the appetite [4]. For example, flavour of chicken biryani or hot coffee in the proximity or any snack item being fired in the neighbourhood definitely tempts an individual and the appetite gets stimulated. An individual may express a desire to consume that item. Appetite can also be used to denote a more specific desire for a set of nutrients which has an impact on sensory taste buds and is often associated with the idea of urges and cravings for food [7].

#### **Spices and Appetisers**

Spices, one of the active ingredients in the appetizers act as stimulant and intensify the salivary flow and gastric juice secretion, and help in digestion [8]. Traditionally black pepper, ginger, chillies are used for their flavour, pungency and other physiological benefits. The active principle of chillies (Capsicum annuum) is capsaicin, while black pepper (Piper nigrum) has piperine, piperidine and chavicine and ginger (Zingiber officinale Roscoeb) has gingerol and shogaol, which are responsible for their hot and pungent properties [9]. Decoctions of these spices are also traditionally used to get relief from the throat as well as certain gastric problems. Pungent compounds are known for stimulating the trigeminal nerve enhancing saliva secretion as well as the secretions in the gastro-Intestinal tract which improve the digestion [10,11]. In the blood stream, non-volatile pungent compounds including capsaicin promote the secretion of non-epinephrine, which causes contraction of blood vessels. This results in an increased blood circulation in the digestive tract. The pungent compounds present in ginger are also responsible for its anti-emetic properties [12]. Ajowan (Trachyspermum ammi) is

known for is digestive and anti-flatulent properties. Traditionally, ginger is used in Indian kitchen as well as in Ayurvedic medicines. Certain other ingredients which supplement the appetising effect include tamarind, kokum, lemon, asafoetida, coriander leaves and seed, mint and Karpuravalli etc. which mainly providing astringency or typical flavour to the food.

The active principles of the some of the spices involved in preparation of appetisers are as mentioned in (Table 1) [6].

Spices are the core ingredients for preparation of any appetiser. Several spices are used in development of appetisers so as to provide variety in taste as well as the appetising efficacy. There are several food items like soups prepared and consumed as appetisers. Most of the commercially available soup mixes involve several spices, vegetables and corn flour as the base. In development of appetisers, different spices such as black pepper, white pepper, ginger, red chilli, green chilli, jeera, ajowan etc. These spices are beneficial for digestion and oro-sensory stimulation due to the pungent compounds present in them (Table 1). A new category of ready to eat appetisers in addition to convenience mixes as well as ready to drink appetisers has been summarised in (Table 2) [13-19]. The RTE chewable appetisers are with mostly sweet & sour in taste and have a shelf life of 10-12 months. Among these, the spiced drink mix and the appetising mix have also been modified and developed as ready to drink appetisers in the tetra-pack by aseptic processing. All these appetisers are stable for six months to one year at ambient conditions.

#### Mechanism & efficacy of appetisers

Several of these appetisers have been evaluated for their efficacy as appetisers in animal studies and human volunteers [20-22]. Three ready to drink appetizers were reported to lower leptin levels, while increasing food consumption and weight gain in rats, with these effects evident for ajowan, ginger and karpuravalli beverages in ascending order [20]. Major spices involved in appetiser preparation are chilli, pepper and ginger and Capsaicin has the highest pungency followed by piperine and zingerone. These have ability to provoke catecholamine (especially epinephrine) secretion from the adrenal medulla. Kavada, et al. reported that piperine and zingerone evoked catecholamine secretion from the adrenal medulla, although to a lesser extent than that caused by capsaicin [23].

Table	1: Active	principles	of the	some	of the	spices	involved	in prepa	aration of
appeti	zers.								

Spices, Botanical Name	Functional component
Ajwain (omum); Trachyspermum ammi	Thymol, carvacrol
Asafoetida, Ferula asafoetida	Hydroxyumbelliprenins, Asafoetidin, Ferocolicin, Disulphides
Black Pepper, <i>Piper</i> <i>nigrum</i>	Piperine, Chavicine
Chilli (Red Pepper) Capsicum annum/ frutescens	Capsaicin, Dihydrocapsaicin
Coriander, Coriandrum sativum	Linalool, $\alpha$ , $\beta$ -pinene, p-cymene, Thymol, Cineol
Garlic, Allium sativum	Diallyl disulfide
Ginger, Zingiber officinale	Gingerol, Shogaol, Zingerone
Jeera (Cumin) Cuminum cyminum L	Cuminaldehyde, Phellandrene
Onion, Allium cepa	Diallyl sulfide

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Category & Shelf Life	Name	Spices Involved	References
Hot Water Reconstitutable (Six Months)	Spiced Drink Mix, Spiced Tomato Mix, Chakota Soup Mix, Karpuravalli Soup Mix	Black Pepper, Chilli, Asafoetida, Ajwain	[13-14]
Cold Water Reconstituble (Six Months)	Appetising mix	Ginger, Asafoetida	[15]
Ready-to-Eat (10-12 months)	Ginger Munch, Fruit Munch , Pepper Munch, Lemon Munch, Jeera Munch, Ajowan Munch, Karpuravalli Munch	Ginger, Cardamom, Pepper, Cumin seed, Ajwain, Lemon etc.	[16-19]

Table 2: Shelf stable Ready-to eat and ready to reconstitute appetisers developed at DFRL.

This promotes utilisation of stored energy via beta-adrenergic receptors in liver and adipose tissue; i.e. the decomposition of glycogen to glucose and the formation of free fatty acids. This in turn triggers Leptin cascade. The leptin and Neuropeptide Y are two hormones secreted in brain (hypothalamus) in coordination to each other. The leptin secretion increases when the stored energy in the body is being utilised and vice-versa. This indicates that when a person is hungry, the satiety level goes down and the leptin level is elevated. Another hormone, neuropeptide Y levels are suppressed and the signal goes to the brain for seeking food and the person expresses the desire for food [24-28].

#### **Commercialisation of appetisers**

The market potential of the appetisers and appetising products is emerging although the hoteliers use it effectively. The appetisers served in restaurants are to be consumed and doesn't have marketable shelf life. However, there are several of soup mixes (e.g. Knorr, Maggi, etc. brands) available in the commerce. The soup mixes vary in their vegetarian and non-vegetarian and also the Indian style, Chinese style etc. pertaining to the marketing strategies of individual companies. Although the concept of ready-to-eat appetisers is yet find place in the market; the know-how of such a product (Ajwain Munch) has been transferred to M/s. SS Vitrans Pvt Ltd., Gurgaon, India. Another category of appetiser is Cold water reconstitutable mixes (Table 2). The technology of the appetising mix has been transferred to M/s. SAB Foods, Chennai. Appetisers may be made commercially available in ready-to-drink form. These can in either in bottles (glass/ polypropylene) or tetra-packs similar to several fruit/vegetable juices. M/s. Hector Beverages with their Paper boat brand is promoting certain beverages such as jal-jeera, ginger -lemon which can also be marked as appetisers with some more variants in ready-to-drink beverages category [29].

At present, there are several ready to reconstitute soup mixes in the market and soon the appetisers will emerge as new food section with RTR, RTD and RTE categories in them and the term appetiser will mainly referred to the product category rather than an adjective to any organoleptically tempting foods being served. Hopefully, appetisers may emerge as a food category that will be useful for kids, elderly and people with the reduced appetite.

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