

# KASHMIR READER

## The colour of food must not blind us to its effects

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Have you ever thought of eating through your eyes? In Kashmir there is a phrase, “Aechowseetkheoun”, which means “You eat with your eyes”. The way the food looks is one of the primary sensory criteria which we use to make a decision about the food we eat. Whether you call it conscious or subconscious, all our five senses gather essential food information. The sight, aroma, and even the sound of food, all these help in developing a taste for food. Let’s think about the visual appearance of food. The expression “eating with your eyes” is certainly true because when a dish is visually appealing and attractive, it’s more appetising. A roasted barbeque/ Seekh Kebab, Pizza, Chicken Shawarma and other snacks common in Kashmir like Nadder Monje, Chutneys, Aloo Pakora, Fish Pakora, etc, fill your mouth with water. A salad made with colourful leafy greens, red chillies and carrots looks more attractive than a bowl of plain salad. The shape and consistency of the food is something that we also look for before eating. Along with visual appearance, aroma is important. Hot foods are more aromatic than cold foods because heat causes compounds within the foods to become more volatile (like a gas). The nasal cells detect them easily and send a message to the brain for recognition of the flavour or type of cuisine. The effects of colour on food are tremendous, as colour plays a crucial role in the visual perception of the food we eat. The appearance and aroma of the food produce a craving for it and colour is a major factor that affects the appearance of food. Colouring and flavouring agents are generally used as food additives to attract consumers. In India, only those colours and flavours are permitted for use which have been approved by the Food Safety and Standards Authority of India. The FSSAI has various standards under the Food Product Standards and Food Additives Regulations, 2011. Colours are generally added to foods and beverages to make them attractive in appearance. Their addition also enhances the colour which could have deteriorated due to the processing operations. Certain colours are associated with certain food. It is a general assumption that colas will be dark-brown, mango juices will be yellow, sauces will be red, etc. Colours are also added to enhance the natural colour.

## Types of Food Colours and Effect on Human Health

Food colours are of two types, classified as artificial and natural. Natural colours are considered better but they appear less vibrant when compared to artificial colours. Natural food colour can be a dye, pigment or any other chemical derivative obtained from vegetable, animal, or mineral source. Colours may come from seeds, fruits, vegetables, algae, and insects. Nowadays, the demand for naturally occurring colours has increased worldwide due to the increased awareness of the therapeutic and medicinal properties of natural ingredients. It can also be because of the known profound toxicity of synthetic colours.

Red, blue and violet colours are derived from anthocyanins found in beetroots, raspberries and red cabbages. Green colour is derived from chlorophylls, found in all leaves and stems. Yellow, orange, red are derived from carotenoids found in apricots, carrots and tomatoes. Artificial colours are manufactured by chemical reactions in industries. The most commonly used artificial food colours are tartrazine, sunset yellow, amaranth, allura red, quinoline yellow, brilliant blue, and indigo carmine. They have to fulfil specific criteria to be used as a food additive. Synthetic colours can be sub-divided into two categories, as permitted and non-permitted. They are widely used in many foods such as bakery products, confectioneries, jellies, and beverages. Various foods and beverages which are easily available in the market may contain some non-permitted synthetic colours viz (Fast red, Rhodamine B, Metanil yellow, Bromo-cresol purple, Green S, Sudan 1, Sudan 2, Sudan 3 and Sudan 4) as well as the overuse of permitted synthetic colours. Various studies have confirmed that the synthetic food colours are a major source of food toxicity and lead to severe health problems such as low haemoglobin concentration, allergic reactions, mutations, cancers, irritability, restlessness, sleeping disturbances, effects on the liver, kidney, and intestine, hyperactive effects on children, ear infections, asthma, and eczemas. Indiscriminate use of even permitted synthetic colours is not safe. The aim of the labelling of food items is not just to stimulate the buyer's interest but also to list the additive content, so that the consumer can make informed decisions.

Food Authority Regulations

The FSSAI regulations for Food Colours are enlisted under the category 'Colouring Matter'. The regulations say that no colouring matter should be added to food unless permitted in these regulations. The food colours cited in the regulations shall be pure and free from any harmful impurities. Synthetic colours have maximum limits not exceeding 100 parts per million of the final food product. Generally, in some food products and beverages, the maximum permissible limit of permitted synthetic food colours should not exceed 200 parts per million. A declaration about the added synthetic food colours in the product should be mentioned on the label of the food product. If any food product available in the market fails to comply with the regulations, the food manufacturer is liable for penalty or punishment. If the colour used in food is used to conceal blemishes or inferior food product, then it can mislead the consumer who will presume the fact, "If the colour in the food is intact, the food could not be spoilt."

Bio-colours: Alternative to Synthetic Colours

Colour has been added to food for centuries. The colouring of candy and wines by Egyptians dates back to 400 BC. Saffron, turmeric and paprika have been traditionally used as food

colorants. Yellow colour (Annatto Dye) in butter has been used as far back as 1300 BC. Ancient Romans used saffron (Picrocrocin and Safranil) and other spices to put a rich yellow colour into various foods. Other naturally occurring foods in powdered form after drying, like carrot, pomegranate, grapes, mulberries, spinach, beet, parsley and flowers, were used as food colouring agents. With the advent of strict legislative regulations and growing awareness among consumers about food safety, bio-colorants have become the choice as they are extracted from sources of biological origin and are much safer than their synthetic counterparts. In India, under the Rule 26 of The Prevention of Food Adulteration Act, 1954 (PFA) and The Prevention of Food Adulteration Rules, 1955 & 1999, following colours – Beetroot concentrates, Annatto, Beta-carotene, Cochineal Extract, Grape extract, Paprika, Oleoresin, Turmeric Oleoresin, Luetin, Phycocyanin, Saffron – isolated from natural sources have been permitted. Bio-colours are naturally prepared from renewable sources and are easily derivable, and without causing any harm to the environment. Natural dyes and colours also have medicinal properties. Production of colours by fermentation is a new trend in genetic engineering, with various advantages such as less production cost, easy extraction, high yield, and no seasonal variations. Many microbial pigments are not only used as colouring agents in food and cosmetic industry but also have anti-cancer, anti-inflammatory, anti-microbial and anti-oxidant properties. Isolation of new microorganisms producing the colouring pigment can be an alternate source of colorants used in food and pharma industry. In this way, biotechnology plays a pivotal role for larger amount of production of bio-colorants through fermentation. The other advantages of bio-colours are less toxicity, non-carcinogenic, and non-poisonous. They are harmonising colours with gentle, soft, subtle, and create a restful effect. Most of them are water-soluble (anthocyanins), which facilitates their incorporation into aqueous food systems. Biocolours can be recycled after use. Use of bicolour may enhance immune systems which prevent tumour developments. So, it is important to explore natural sources of food colorants. Natural colours are safer and better than synthetic food colours. There is an increasing trend worldwide to shift from synthetic to bio colours. More detailed studies and scientific research is required to assess the potential of bio-colorants to satisfy the needs and demands of consumers