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Cross talk between synthetic food colors (Azo dyes), Oral flora and Cardiovascular Disorders

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Synthetic food colors are important ingredients in the food industry. Majority synthetic food colorants are azo dyes and obviously acidic in nature. They are present in sweets, carbonated drinks, meat products and candies to attract the consumers. This study is an attempt to explain the adverse effects of azo dyes and their association with oral cavities and cardiovascular disorders. All of synthetic dyes (azo dyes) have staining effects on dentin. Poor dental care accelerates the bacterial accumulation on the dental crown (Gram-negative bacteria *P. gingivalis*, *T. denticola* and *T. forsythia* and Gram-positive bacteria *Strep. Gordonii*), causing the washing of enamel, forming dental plaque. All the bacterial phyla contribute to different and major oral disorders, such as periodontal disease, which is caused by releasing different chemicals and toxins causing the gum disease by weakening the gum tissues. *Streptococcus mutans* in the mouth thrives on sugar and produces acids, which eat the enamel and accelerate the bacterial pathogens (*P. gingivalis* and *F. nucleatum*) to release different chemicals (FadA and Fap2). These chemicals bind to protein on the cell by producing an inflammatory response through different. Bacterial pathogens get attached with the surface releasing different chemicals that binds with the protein of cells, which helps the bacteria to migrate from cell-cell junction, making the vessels more permeable. Different toxins such as exotoxins and endotoxins entered in the bloodstream line, which get attached to the walls of vessels through which it travels to carotid artery and build up the plaque which after lead to major arteries such as coronary artery. The dental plaque is the same plaque which builds up in the major arteries, also different synthetic food colors which were used in food contains amino acids and salts concentration (especially sodium chloride), accumulation of plaque in arteries causes IHD, CAD, hypertension, atherosclerosis and hypernatremia. Line-host defenses, such as gingival Epithelial Cells (ECs), Hemi- desmosomes and desmosomes, which helps the bacterium migration from the cell-cell junction. This makes the junctions slightly open up and makes the whole vessel permeable, through which the bacterium enters into the blood stream line. This leads to different major arteries such as the carotid artery and causes the accumulation of plaque in major cardiac arteries which causes different cardiovascular disorders. The bacterial species present in gums cause cardiovascular diseases such as ischemic heart disease, coronary artery disease, heart attacks, strokes and arrhythmias which can lead to death.

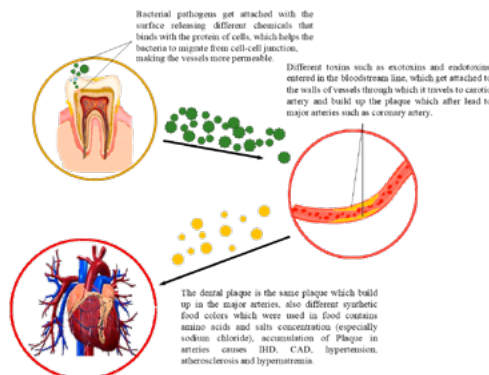


Figure 1: Formation of biofilms which lead to build-up plaque in blood vessels and arteries causes 276 different cardiovascular disorders.

Recent publications

1. Hou, K.; Wu, Z.-X.; Chen, X.-Y.; Wang, J.-Q.; Zhang, D.; Xiao, C.; Zhu, D.; Koya, J.B.; Wei, L.; Li, J.; et al. Microbiota in health and diseases. *Signal Transduct. Target. Ther.* 2022, 7, 135.
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Biography

Arooba John completed her/his MSc Botany, Applied microbiology from government college and university, Lahore, Pakistan. His/her current filed placement is microbiology, cellular biology and, genotoxicity, which have been utilized from the past few decades to overcome or prevent the most inexorable diseases. She/he is interested in studying the effect of pathogenic oral microbiome in major human diseases. Oral microbiome is crucial to health as it can cause both oral and systematic disease. This study is the result of enthusiasm, efforts and passion which she/he has for sciences. And it's her/his aim to make a better environment in which every person can enjoy a better or healthier lifestyle. Association between oral flora and cardiovascular disorders are considered to be as a major contribution in scientific community. She/he believed that, this approach is turned out to be a remarkable contribution in world.

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