**Cold Plasma:Application in Food Safety**

Dinesh Kumar Ra, Sairagul Gb, Sudeep Bc

aDepartment of Food Technology, Kongu Engineering College, Erode.

bDepartment of Food Technology, Kongu Engineering College, Erode.

cDepartment of Chemical Engineering, Kongu Engineering College, Erode.

*E-Mail:dineshsalkind@gmail.com*

**Abstract :**

*Cold plasma technology is an emerging non thermal technology that uses energetic reactive gases, which finds numerous applications in food processing sector. It is used to inactivate the highly contaminating microbes in meat, poultry, fruits and vegetables without changes in sensory, physiochemical and nutritional attributes. It would be a revolutionary technique for satisfying the growing demand for minimally processed fresh foods which also meets food safety standards. Atmospheric plasmas containing high levels of bactericidal molecules (> 100 ppm ozone, nitric oxide, peroxide etc...) are generated with minimum power and time under room temperature conditions. For products such as cut vegetables and fresh meat, there is no mild surface decontamination technology available currently; cold plasma could be used for this purpose. Unlike UV decontamination, plasma flows around food material ensuring all parts of product are treated. This paper reviews is to elucidate on the cold plasma-mediated surface modification of organic cells and biomaterials. We demonstrate that the non-aggressive cold plasma can apply on organic materials without causing thermal and electrical damages. The atmospheric pressure cold plasma was generated by utilizing the combination of corona discharge-induced plasma on a tip edge, and the dielectric barrier discharge (DBD). Specifically, this work presents the transformation of the hydrophobic to the hydrophilic surface of sunflower seeds. Therefore,cold plasma becomes an alternative method of surface treatment for the organic- and bio- materials. While not currently available for commercial use, this non thermal processing technique is environmentally friendly and sustainable, as it does not require storage chemicals or usage of large volumes of processing water. This paper reviews the uses and importance of cold plasma technology in food processing with its advantages over the other techniques adopted at present.*

*Keywords:*

**Microbial decontamination, Bactericidal, Sustainable, Ozone, Corona Discharge.**