The modern human diet consists of a wide variety of food materials from different sources. The active promotion of fruits and vegetables as an important essential part of a healthy diet, and their promotion has lead to significantly increased the amount of fresh produce being eaten all over the world globally. However, recent outbreaks of foodborne illnesses related to consuming fresh produce consumption has heightened concerns that these foods might be a source of an increasing source of illness. Fresh and freshly cut produce requires minimal processing that does not involve required for fresh and freshly cut produce which omits any effective microbial elimination step even though results in these food products naturally carrying microorganisms, some of which may be a source of potentially hazardous to the human health.

Some of the foodborne pathogens like Salmonella spp., E.coli, Citrobacter spp., and Enterobacter spp. produce curli, which help in the initial steps of biofilm formation and enhances the resistance of cells in biofilms for against sanitizers and disinfectants. Curli are proteinaceous components of a complex extracellular matrix and are produced by many Enterobacteriaceae. They are thin, coiled fibers expressed on the surfaces of cells that bind several matrix and plasma proteins such as fibronectin, laminin, plasminogen, and azo dyes like Congo red.

Raw fruits, vegetables, fruits and unpasteurized juices contain a number of several curli-producing foodborne pathogens which are associated with that can cause food related diseases. These curli producers form biofilms on fresh produce as well as on and food contact surfaces, and resulting in the cross-contamination of produce.

Curli-producing bacterial strains are characterized by their ability to bind Congo red, which provides a simple screening method for in vitro curli production. The Congo red binding technique has can follow either a qualitative approach or as well as a quantitative approach. In the present study, curli producers were isolated from fresh produce and
unpasteurized carrot juice using a modified Luria Bertani (LB) medium. Curli-producing organisms formed dry red rough colonies on modified LB medium, while nonproducers formed smooth white colonies. Furthermore, parameters that control curli production, such as temperature and osmolarity, were evaluated using the Congo red binding technique.

The resistance of biofilms formed by curli-producing organisms was evaluated, revealing that and found that curli production increased biofilms’ resistance to various commercially used sanitizers.