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Effects of rotational speed on inactivation of E.coli in red pepper powder by DBD plasma

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The increased consumer awareness about problem of foodborne illness in spice such as red pepper powder for human health is increasing and the concern for food safety. Treatment of eliminate such contaminants has been attempted by various methods, including ethylene oxide gas, super-heated steam, hot air heating, irradiation, and LED process. Especially, Ethylene oxide restrict in many European countries. Because It known for a carcinogen. For this reason, it is difficult to use commercially. The plasma technology has recently drawn considerable attention of food scientists and researchers. However, conventional plasma device have a problem with treating objects uniformly because they only treat surfaces. We added a agitator of red pepper to solve this problem.

In this study, we will evaluate the possibility on inactivation of E.coli in red pepper powder using DBD plasma.

The cylindrical DBD reactor consists of a inner stainless steel electrode with quartz as a dielectric on the outer side and a copper electrode with quartz as a dielectric on the inner side of the outer electrode. The gap distance was kept fixed at 1 mm. Power conditions are 15 kHz, TPS 4 ?, 15 kV, and injection gas is air (5 lpm). The agitator size is 280mm(L) \* 70mm(W) \* 70mm(D). The designed device aims to control the rotational speed to increase the contact area between the active species and the red pepper powder.

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