



UV TREAT MACHINE

TECHNOLOGY DESCRIPTION

The technology is an UV Treat Machine designed to treat fresh tropical juices such as pineapple juice from bacterial population growth.

TECHNOLOGY FEATURES

The technology focuses on inactivating bacteria growth at a reduction of 5 log₁₀ in the fruit juices. This adheres to the standard that is required by the Food and Drugs Administration (FDA) which existing designs are not able to achieve. This technology is able to overcome the current challenge of conventional pasteurisers that are either non-thermal or thermal. The machine adapts a dean vortex flow concept that increases the mixing effect and UV exposure towards microorganism. Increased UV exposure increases the lethality rate of the microorganism. The machine has a simple structure, feasible and cost –savvy. Quality of juice in terms of freshness are preserved and not affected with the usage of this machine.

ADVANTAGES

- Longer shelf life and no by-products
- Free of preservatives and chemicals
- Preserves vitamins and antioxidants

INDUSTRY OVERVIEW

Main Prospect: Food and Beverage Industry

The UV TREAT Machine is designed to treat the fresh tropical juices to inactivation of bacteria at least of 5 log₁₀ reduction, in which existing designs are unable to achieve. Among the benefits of this product are: i) preservation of vitamins and antioxidants, ii) free of preservatives and chemicals, iii) preservation of fresh-like juice quality, iv) longer shelf life, and v) no by-products.

The International UV Association cited BCC Research figures that the market for UV light disinfection equipment was around \$885 million in 2011 and will grow to \$1.6 billion by 2016. Water treatment is the largest portion of this market, accounting for 61 percent of it in 2011 and 58 percent in 2016. This product is suitable for the service and manufacturing companies in the Food and Beverage industry. In Malaysia, SME comprised of around 645,136 SMEs reporting 97.3 per cent of total business establishments. Out of that, it is highlighted that in Malaysia 142,721 SMEs were in the Food and Beverage services sub-sector; and 6,016 SMEs were in the Food and Beverages manufacturing sub-sector. Possible fruit and vegetable juice suppliers were recorded to be 306 in total.



Assoc. Prof. Dr. Rosnah Shamsudin
Faculty of Engineering
rosnahs@upm.edu.my