

The surfing theory

Abstract

It is a theory that I used to determine where microorganisms could gather in process lines through combination, between CFD (Computational fluid dynamics) and microorganism motion.

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Salah Eddine Nacer Bey

Chemist and Microbiologist, Hygienix Manufacture Company, Algeria

Correspondence: Salah Eddine Nacer Bey, Chemist and Microbiologist, Hygienix Manufacture Company, 7 Zone C 16013 Rouiba Algérie, Algeria or city 11 decembre 1960 Bt7 N6 Boumerdes, Algeria., Tel 213 6575 16036, Email s8nacerbey@gmail.com

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Opinion

The velocity of microorganism falls in scale of the micrometer per second to the velocity of any fluid in the process line. So if we compare the velocity of microorganisms to a fluid segment of the same shape and dimension of any microorganism the result is.

Could the microorganism resist to the velocity of this fluid, through a response comes the theory of surfing

“The microorganism surfs on any fluid using a small segment of fluid as a surf board to move fast for reaching the source of nutrition.”

On the other hand, the microorganism could not avoid the notion of the head loss. The part where the head loss is important it is used by the microorganism to gather and forming the biofilm.

I used CFD to confirm this hypothesis, in return I found that the microorganism could not surf away from the part where the head loss is huge, and so I made traps in those parts where the head loss is important to prevent contamination.

I believe that this theory could help and push the HACCP forward by using CFD to determine the points where the microorganism could gather, even in human bodies to prevent the behavior of the microorganism and it travel by exploiting the velocity of the blood or any fluid in the body.

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Conflicts of interest

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