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## Study on the Quality Change of Fresh-cut Lettuce Treated with Ozonated Water

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**ABSTRACT** Fresh-cut lettuce was treated with ozonated water and the effect on total bacterial counts and coliform group, PPO activity, Vc content, weight loss ratio and sensory quality were evaluated during storage at 4℃. Experimental results showed that the number of total bacterial counts on fresh-cut lettuce was reduced by the order of about  $10^{1.6}$  with 0.18 μg/L of ozonated water, and that the number of total coliform group was lowered to less than 30 (MPN/100 g) (Most Probable Number) by treatment of ozonated water. The Polyphenol Oxidases (PPO) activity of fresh-cut lettuce was much inhibited by ozonated water. The loss of Vc content and weight loss ratio of fresh-cut lettuce treated with 0.18 μg/L ozonated water was lower than that of the samples with no treatment or treated only at levels of 0.03 μg/L and 0.08 μg/L. In addition, sensory quality of fresh-cut lettuce treated with ozonated water was much better than that of one non-treated.

**Key words** ozonated water, fresh-cut lettuce, quality change, storage



### 焙烤食品走上保健功能之路

近几年,保健功能性食品市场稳步增长,尤以乳制品业表现最为突出。然而,同样与人们生活息息相关的焙烤业也在跟进,不断有更多新保健功能的产品出现在超市的货架上。根据英国的一份市场报告分析,2003年在焙烤食品中,功能面包的销售额占总面包的6%,其中美国的市场最大,达到4 900万美元,英国为1 210万美元,法国为30万美元,德国为3 310万美元,预计2004年德国功能面包市场将会达到4 030万美元。功能饼干、蛋糕和精制点心销售额占总销售额的7%,法国是最大的功能饼干和蛋糕市场,2003年的营业额为8 090万美元,预计2004年将增加至9 060万美元。

与法国比较,德国的市场要小得多,2003年只有260万美元,2004年预计也只会达到310万美元。美国市场2003年营业额为7 890万美元,2004年有望达到8 420万美元。日本在功能食品或称特定保健用食品方面,一直是世界上最主要的国家之一。在焙烤食品上也不例外,该国2家面包制造商在全球功能焙烤食品市场上分别占有24%和6.7%的份额。

据了解,目前市场上较为畅销的功能面包有法国Meadow公司的“男人面包”,该面包中添加有大豆异黄酮 $\omega$ -3和 $\omega$ -6脂肪酸。该公司的开发目标是针对当前极不发达的男性食品市场。德国生产的L-肉碱强化面包,特别针对酷爱体育运动的人群,以提高他们的活力。德国和澳大利亚也开发了添加益生元菊粉的面包。

在日本,能起到美容作用的面包十分受欢迎,如一种强化DHA和甘露糖的面包,据说有改善皮肤的功能。添加海藻糖和大豆异黄酮的面包被认为可以增加人体对钙的吸收。