

## IDENTIFICATION OF KERATINOLYTIC FUNCTION IN *CHRYSEOBACTERIUM CAMELLIAE* DOLSONGI-HT1 ISOLATED FROM GREEN TEA

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Keratin forms a major component of the epidermis, hair, feathers, nails, scales and etc. However, old keratins on the skin are not preferred for the beauty purpose. Therefore, in the highly efficient and low irritative method to remove old keratin on the skin is highly desired. For this purpose, one of the appropriate methods is the enzymatic lysis of keratin. To screen a novel keratinase, a novel microorganism having keratinolytic activity was isolated by enrichment culture. Newly screened microorganism was isolated from green tea in dolsong-i tea garden, Jeju and identified as *Chryseobacterium camelliae* Dolsongi-HT1. The keratinase activity of *C. camelliae* Dolsongi-HT1 was confirmed in the culture media. The effect of pH and temperature were studied using cell culture media. Crude keratinase showed high activity over a wide range of temperature (37 to 60°C) and showed the highest activity at 50°C. Optimum pH of keratinase activity of crude keratinase was pH 8. Interestingly, this enzyme activity was maintained over 50% at pH 6. This feature is promising for the application to cosmetics. The effect of nitrogen source for cell culture was also investigated. Among the various nitrogen sources, the highest keratinase activity (relative activity of 366.4%) was detected when cells were cultured using tryptone extract. To study the keratinolytic activity effect of keratin on the skin, the keratin of skin was obtained using tape stripping. It was found that the structure of keratin was degraded by crude keratinase. To identify the keratinase, the complete genome of *C. camelliae* Dolsongi-HT1 was sequenced. Because keratinases are regarded as serine or metalloprotease group, we searched for those proteases in the *C. camelliae* Dolsongi-HT1 genome sequence. As a result, over twenty putative keratinases could be identified. Further research to identify desired keratinases should be performed.