

Characterization of *Halophilic archaea* thioredoxin : Efficiency Analysis and Safety Assessment of Archaea Trx as Cosmeceutical material for Reducing Pigmentation

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The extremely halophilic archaeon, *Halobacterium salinarum* grows in the environment containing more than 25% NaCl. The enzymes and proteins from this archaea organism have thus been adapted to be active and stable in the hyper salt and hyper-oxidation stress condition¹⁾. Among these enzymes thioredoxin, a family of redox proteins, is a small ubiquitous protein that participates in various intracellular redox reactions. They act as hydrogen donors for various reductive enzymes, protein disulfide oxidoreductases, photosynthetic regulatory factors. Thioredoxin can also reduce H₂O₂ and scavenge free radicals²⁾. Therefore, thioredoxin as antioxidant is possible to be used as a cosmeceutical material or skin regeneration material. To analyze the antioxidant activity of Archaeon Thioredoxin (ArcTRX), we tested activities using the insulin disulfide reduction assay comparing with the human thioredoxin (HumanTrx) in various conditions (pH, temperature, salt). Then we tested the tyrosinase inhibition activity and melanogenesis inhibition activity to show the possibility as a cosmeceutical material.

References

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