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Cloning and Expression of the Gene Encoding DNA Polymerase from *Thermus thermophilus* HJ6 in *Escherichia coli*

Min-Ho Seo¹, Bu-Kyoung Kim¹, Pyung-Hwa Kwak¹ and Sung-Jong Jeon^{1,2,*}

¹Department of Biotechnology & Bioengineering, ²Department of Biomaterial Control (BK21 program), Dong-Eui University, Busan 614-714, Korea

A gene encoding for a putative DNA polymerase (Tod) from *Thermus thermophilus* HJ6 was cloned and expressed in *Escherichia coli*. Tod gene is composed of 2,505 nucleotides, encoding a protein (834 amino acids) with a predicted molecular mass of 93,795 Da from *T. thermophilus* HJ6. The gene from *T. thermophilus* encoding a 93.8-kDa protein showed a 79-98% identity with other DNA polymerases from *Thermus* strains. Tod gene was expressed in *E. coli* codon Plus (DE3) cells by heat shock induction using the pJLA503 vector system. The *E. coli* cells were disrupted by sonication and the supernatant fraction was heat-treated at 85°C for 20min. The recombinant Tod has a molecular mass of 94 KDa, determined by sodium dodecyl sulfate-polyacrylamide gel electrophoresis. DNA amplification using the recombinant Tod DNA polymerase performed the same as other thermostable DNA polymerase from *Thermus* strains. [This work was supported by the Marine and Extreme Genome Research Center Program of the Ministry of Land, Transportation and Maritime Affairs, Republic of Korea]

Key words: *Thermus thermophilus*, DNA polymerase, heat shock, *Thermus*, PCR

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Effects of *Omija* and *Maesil* Extracts in Ionic Water on Endurance Exercise Performance in Mice

Mi Hee Woo¹, Moch. Saiful Bachri², Jong Won Choi^{2,3} and Hee Sook Kim^{1,3}

¹Department of Food Science and Biotechnology, Kyungsung University

²Department of Pharmacology, Kyungsung University

³Biotech Institute of Kyungsung University

We investigated the effect of new sports drinks, containing 6% carbohydrate, electrolytes, *Schizandra chinensis*, *Prunus mume* and molasses, on the endurance exercise capacity and the changes of blood biochemical parameter in experimental animals orally administered for 4 weeks. Drinks containing 6% carbohydrate-electrolyte like commercial ionized drinks did not affect to enhance the forced swimming capacity or running time on a treadmill until all-out state. Whereas the addition of *Omija* (*Schizandra* berry of *Schizandra chinensis*) and/or *Maesil* (fruit of *Prunus mume*) in 6% carbohydrate-electrolyte drinks exhibited increasing effect on the exercise endurance in mice. The addition of both *Omija* and *Maesil* in ionic water showed synergistic effects significantly on the exercise capacity and decreasing effect on the level of blood lactate and ammonia, metabolites known to cause to fatigue more than the addition of only *Omija* or *Maesil* in ionic water. Lignans including Schisandrin from *Omija* is known as an antihepatotoxic, antiasthmatic, antidiabetic, sedative and tonic agent. *Maesil*, which has abundant organic acids (succinic acid, citric acid, malic acid and tartaric acid), sitosterol, and minerals, has been commonly used in folk remedies and Chinese medicine over very long period. **Acknowledgement:** This work was supported by the 2008 Busan TechnoPark program (BTP) and Human Resource Training Project for Strategic Technology.

Key words: Sports Drinks, exercise endurance, forced swimming test, fatigue