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Water Extracts of *Terminalia chebula* R. Stimulate T-bet Promotor Expression *In Vitro*

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The fruit of *Terminalia chebula* R., which is a native plant in Southeast Asia, has been used as a popular traditional medicine for various degenerative diseases. Researches of allergic diseases including allergic rhinitis, atopic dermatitis and asthma, enable to the development of new specific anti-inflammation medication. The remedy inhibited inflammation, aggregation of immune cells, cytokine (IL-4, Il-13 and so on) and type 2 $CD4^+$ T-cells. Several studies have demonstrated that the numbers of Th2 cells are more than those of Th1 cells in asthma patients. In order to develop the effective agent(s) from natural sources, T-bet is a fascinating molecular target for the progression/differentiation of Th1 cells. We, therefore, hypothesized if we can increase T-bet promoter expression, the targets regarding molecular inflammation will be up-regulated, resulting in controlled status in inflammation-related cells. When T-bet promoter luciferase assay was carried out, the water extracts of *Terminalia chebula* R. were screened for the promising hit. The luciferase activity treated with *Terminalia chebula* R. was the same level as that of LPS (a stimulant for T-bet promoter), suggesting that the active substance(s) from *Terminalia chebula* R. may be worthy of the isolation and purification of the plant. Collectively, we screened *Terminalia chebula* R. for anti-oxidant as well as anti-asthmatic plant extracts, and the present assay system has potential to screen hits by high throughput-compatible assays.

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Expression in *Escherichia coli* of the Thermostable Group II Decarboxylase from the Hyperthermophilic Archaeon *Aeropyrum pernix* K1

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A gene encoding for a putative pyridoxal-dependent decarboxylase from the hyperthermophilic archaeon *Aeropyrum pernix* K1 was cloned and expressed in *Escherichia coli*. The gene (Accession No. APE0020.1) from *A. pernix* is composed of 1,395 nucleotides, encoding a protein (464 amino acids) with a molecular mass of 51,012 Da. The gene (APE0020.1) coding a 51 kDa protein showed a 40-47% identity with other group II decarboxylase from the archaea. The ORF (APE0020.1) was amplified by PCR from a *A. pernix* genomic DNA, cloned, and sequenced to confirm the sequences in the database. The gene was expressed in *E. coli* BL21-CodonPlus(DE3) cells by IPTG induction. The *E. coli* cells were disrupted by sonication and the supernatant fraction was heat-treated at 85°C for 30 min. The recombinant protein has a molecular mass of 51 kDa, determined by SDS-PAGE.

Key words : decarboxylase, archaea, hyperthermophile, thermostable