Pengaruh aged garlic extract terahdap peningaktan kadar nitric oxide dalam darah subyek laki-lai hiper-reaktor usia 20-30 tahun

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Abstrak

Latar belakang: Aged garlic exlraci adalah bawang putih yang telah direndam didalam ethanol 15-20% selama 20 bulan pada suhu kamar sehingga zat aktif didalam bawang putih mentah berubah menjadi komponen sulfiu' yang mudah larut dalam air, yaitu S-allylcysteine (SAC), dan S-allylmercaptocysteine Aged garlic extract dapat meningkatkan produksi nitric oxide, karena S-ajlilcysteine dapat memicu masuknya kalsium kedalam sel endotel, selanjutnya merangsang endoiheliol nitric oxide .synihase memproduksi nitric oxide. Nitric oxide yang telah dibcntuk akan segera berdiiiisi kedalam sel otot polos yang berdekatan serta mengalctifkan beberapa mekanisme yang akan menyebabkan otot polos relaksasi dan tonus pembuluh darah menurun. Cold Pressor Test adalah suatu standar tes untuk memprediksi orang yang normotensi kelak akan mengidap hipenensi jika hasil tesnya masuk kedalam kategori hiper-reaktor, karena orang hiper-reaktor teljadi hipersesitivitas pada sistem saraf simpatisnya dan gangguan pada pembentukan nitirc oxide sebagai vasodilator di pembuluh darah. Bila aged garlic extract dapat meningkatkan kadar nitric oxide maka tonus pcmbuluh darah pada orang hiper-realctor dapat dijaga agar tidak meningkat ketika teriadi vasokonstfiksi.

Tujuan: Mengetahui efek aged garlic extract pada proses peningkatan kadar nitric oxide dalam darah subyek laki-laki hiper realctor usia 20-30 tahun Metode: Mendapatkan sampcl hiper-realctor dengan melakukan uji cold pressor tes! pada subyek laki-laki yang bemmur 20 - 30 tahun. 10 Subyek dibcri aged garlic exiraci 1200 mg per oral, 10 subyek diberi plasebo, kemudian dilakukan pcrncriksaan kadar niiric oxide sebelum perlakuan, sesudah 60` perlakuan dan 90` perlalcuan menggunakan Mtratedilitrite Colorimezric Assay yang dikeluarkan Oleh Cayman Chemical Company.

Hasil: Kadar nitric oxide sesudah pemberian aged garlic exrraci terlihat lebih tinggi daripada sebelumnyzg namun sccara statistik tidak bcrbcda bcrmakna (p > 0,05). Demikian juga nilai nitric oxide sebelum dan sesudah perlakuan pada masing-masing kelompok antara dua kclompok, tidak bcrbeda bcrmakna untuk A 60` (p > 0,05) dan A 90` (p > 0,05). Selanjutnya dilakukan uji untuk melihat apakah nilai nitric oxide dad waktu ke waktu tersebut berbeda antara kelompok perlakuan dengan kelompok plasebo, didapatkan hasil (p> 0.0S), dan nilai niiric oxide dari waictu ke waktu tersebut tidak ada kaitannya dengan beda perlakuan (p >o,o5).

Kesimpulan: Sediaan aged garlic extract sebanyak 1200 mg yang diberikan per oral kepada manusia cenderung meningkatkan kadar nitric oxide, namun secara sratistik tidak berbeda bermakna.

.....Introduction: Aged gmlic extract derives from garlic that has been remained in 15-20% ethanol for 20 months at room temperature so that the active substance in garlic changes into sulfur component that is water-soluble, S-allylcysteine (SAC), and S-allylmercaptocysteine_ Aged garlic extract increase the production of Nitric Oxide (NO), this is happen because SAC stimulate the entry of calcium into endothelial cell, furthermore stimulate endothelial nitric oxide synthase to produce NO. Nitric Oxide that has been formed diftitses immediately into neighboring smooth muscle and activates several mechanisms that cause

smooth muscle relaxation and decrease vascular tone. Cold Pressure Test is a standard test to predict whether a person with normotension is at risk to become hypertension if the test results fallen into hyper-reactor category. Hyper-reactor people have sympathetic nerves hypersensitivity and alteration in the production of NO as vasodilator. IfAged garlic extract is able to increase NO level, then vascular tone in a hyper-reactor person can be maintained not to increase when vasoconstriction occur.
Objective: Knowing the effects of aged garlic extract to the increase level of Nitric Oxide within blood of hyper-reactor men aged between 20 -30 years. Method: Acquiring the sample by performing cold pressure test to men subject aged between 20-30 years old. Ten subjects were given 1200 mg of aged garlic extract per oral and ten other subjects were given the placebo. Then, an examination been done to check the value ofN0 level before treatment, 60’ atier treatment, and 90’ after treatment using Nitrate/Nitrile Colorimetric Assay produced by Cayman Chemical Compatnt.
Result: The value of nitric oxide (NO) level aiter aged garlic extract were given is higher than before, hut statistically does not shown significant difference ($p > 0.05$). Both does the value of NO level before and atter treatment in each group, between two groups shows no significant difference at A60` ($p > 0.05$) and A90` ($p > 0.05$). Furthermore, a test been done to observe whether the value of NO level from time to time were different between the treatment and the placebo group, the result is $p > 0.05$. In addition, the value of N0 level fiom time to time had nothing to do with the different treatment ($p > 0.05$).
Conclusion: The preparation of 1200 mg aged garlic extract that was given orally to human tends to increase the level of NO, although statistically the increase is not significantly different.