

Pengaruh jus tomat pada kadar likopen plasma dan 8-hidroksi-deoksiguanosin dna lekosit pekerja laki-laki perokok ringan

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Abstrak

Tujuan: Mengetahui pengaruh konsumsi jus tomat 350 gram/hari selama 4 hari berturut-turut terhadap kadar likopen plasma dan 8-OHdG DNA lekosit pada 27 subyek pekerja laki-laki perokok ringan

Bahan dan cara: Penelitian eksperimental dengan desain pre dan post test, dengan subyek penelitian sebanyak 27 orang yang telah memenuhi kriteria penerimaan. Subyek penelitian diberikan jus tomat sebanyak 350 gram setiap hari selama 4 hari berturut-turut. Data yang dikumpulkan meliputi data demografi, data antropometri sebelum perlakuan, data asupan nutrisi sebelum dan selama perlakuan serta data laboratorium sebelum dan sesudah perlakuan berupa kadar likopen plasma dan 8-OHdG DNA lekosit.

Hasil : Data demografi menunjukkan sebagian besar subyek berpendidikan menengah dengan penghasilan di bawah garis kemiskinan, mengalami paparan tidak langsung terhadap debu panas dalam pekerjaannya dan merokok jenis rokok standar. Data antropometri sebelum perlakuan menunjukkan 1MT dan persentase massa lemak tubuh masih dalam Batas normal. Asupan nutrisi selama perlakuan meliputi asupan energi, lemak, serat dan likopen meningkat bermakna ($p < 0,05$). Data laboratorium menunjukkan median kadar likopen plasma sesudah perlakuan mengalami peningkatan bermakna ($p < 0,05$) sebesar 39,1% dari 0,143 (0,019 - 0,259) $\mu\text{mol/L}$ menjadi 0,185 (0,065 - 0,317) $\mu\text{mol/L}$. Median kadar 8-OHdG DNA lekosit sesudah perlakuan mengalami penurunan bermakna ($p < 0,05$) sebesar 45,3% dari 62,425 (13,499 - 133,206) ng/mL menjadi 35,459 (7,595 - 91,247) ng/mL. Terdapat korelasi negatif derajat cukup ($r = -0,28$) antara persentase massa lemak tubuh dengan kadar likopen plasma sebelum perlakuan. Juga terdapat korelasi negatif derajat cukup ($r = -0,39$) dan bermakna ($p < 0,05$) antara besarnya peningkatan kadar likopen plasma dengan penurunan kadar 8-OHdG DNA lekosit sesudah perlakuan.

Simpulan : Konsumsi jus tomat sebanyak 350 gram/hari selama 4 hari berturut-turut pada pekerja laki-laki perokok ringan, terbukti meningkatkan kadar likopen plasma dan menurunkan kadar 8-OHdG DNA lekosit.

The Effects of Tomato Juices on Plasma Lycopene and 8-Hydroxy-Deoxyguanosin of Leukocyte DNA Levels of Light Smoking Male Workers
Objective : To evaluate the effects of 350 gram/day tomato juices consumption for 4 consecutive days on plasma lycopene and 8-hydroxy-deoxyguanosin of leukocyte DNA levels of 27 light smoking male worker subjects.

Material and method: An experimental study with pre and post test design was carried out on 27 subjects who fulfilled the criteria of the selection. Subjects were given 350 gram tomato juices daily for 4 consecutive days. Data collected were demographic, anthropometric, nutritional and laboratory such as plasma lycopene and 8-OHdG of leukocyte DNA.

Results: Demographic data showed that most of the subjects had moderate education, monthly income below the poverty line, indirect exposure to the working environmental pollutant and smoked standard cigarette. Anthropometric data showed that BMI and fat mass percentage were in normal range. Dietary intake during treatment increased significantly ($p < 0.05$), for energy, fat, fiber and lycopene intake. Median value of plasma lycopene after treatment increased significantly ($p < 0.05$) by 39.1% from 0.143 (0.019 - 0.259) $\mu\text{mol/L}$ to 0.185 (0.065 - 0.317) $\mu\text{mol/L}$. Median value of 8-OHdG of leukocyte DNA after treatment decreased significantly ($p < 0.05$) by 45.3% from 62.425 (13.499 - 133.206) ng/mL to 35.459 (7.595 - 91.247) ng/mL . A moderate negative correlation ($r = -0.28$) was obtained between percentage of body fat mass and plasma lycopene levels before treatment although non significant. There were a moderate negative and significant ($p < 0.05$) correlation ($r = -0.39$) was obtained between elevated plasma lycopene level and decreased of 8-OHdG of leukocyte DNA after treatment.

Conclusion: Consumption of 350 gram tomato juices daily for 4 consecutive days on light smoking male workers was proven to elevate the level of plasma lycopene and decrease the level of 8-OHdG of leukocyte DNA.