

## ABSTRACT

### THE INFLUENCE OF CARBONATED SOFT DRINKS CONSUMPTION ON GASTRIC HISTOPATHOLOGY CHANGES OF MALE *Sprague dawley* WHITE RATS (*Rattus norvegicus*)

By

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**Background:** Carbonated soft drink is classified as a non-alcoholic type of beverages which gone through carbonation proses with additions of caffeine and phosphoric acid. Increasing in the consumption of carbonated soft drink already happening for the last two decades. Based on 88 meta-analytical studies, it shows that consumption of carbonated soft drink may lead into several health issues, for examples an effect on gastrointestinal.

**Objective:** The aim of this research is to observe any changes that might happen in gastric histopathological of white male rats (*Rattus norvegicus*) with *Sprague-dawley* strain because of the consumption of carbonated soft drink.

**Method:** Quasi experimental research was done with randomized controlled method using post test only control group design. 24 white male rats (*Rattus norvegicus*) with *Sprague-dawley* strain was divided into 4 groups, consist of control group (K) which was given aquadest, treatment 1 group (P1) which was given carbonated soft drink with 3 ml/200 g/day, treatment 2 group (P2) with 6 ml/200 g/day, treatment 3 group (P3) with 12 ml/200 g/day. Overall research was observed for 30 days.

**Result:** Average score of damage in gastric mucosa obtained using One Way ANOVA test with  $p=0.00$  was 0.17 for control group, 0.7 for P1 group, 1.07 for P2 group, and 1.53 for P3 group. The test was followed by post hoc LSD test which resulted significant difference for all type of groups ( $p<0.05$ ).

**Conclusion:** There is a significant difference of carbonated soft drink consumption into white male rats (*Rattus norvegicus*) of *Sprague-dawley* strain gastric histopathological changes.

Keywords: Carbonated soft drink, gastric histopathological, effect on gastrointestinal, white rats.

## ABSTRAK

### PENGARUH PEMBERIAN MINUMAN RINGAN BERKARBONASI TERHADAP PERUBAHAN HISTOPATOLOGI LAMBUNG TIKUS PUTIH (*Rattus norvegicus*) JANTAN GALUR *Sprague dawley*

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**Latar Belakang:** Minuman ringan berkarbonasi adalah minuman non-alkohol yang mengalami proses karbonasi dengan tambahan zat seperti kafein dan asam fosfat. Pada dua dekade terakhir telah terjadi peningkatan konsumsi minuman berkarbonasi di dunia. Delapan puluh delapan studi meta-analisis menunjukkan bahwa konsumsi minuman ringan berkarbonasi dapat menimbulkan masalah kesehatan seperti efek gastrointestinal.

**Tujuan:** Penelitian ini bertujuan untuk mengetahui apakah minuman ringan berkarbonasi dapat mempengaruhi perubahan histopatologi lambung tikus putih (*Rattus norvegicus*) jantan galur *Sprague dawley*.

**Metode:** Jenis penelitian kuasi eksperimental metode rancangan acak terkontrol menggunakan *post test only control group designs*. Sampel terdiri dari 24 ekor tikus putih jantan galur *Sprague dawley*, dibagi menjadi 4 kelompok: kelompok kontrol (K) hanya diberi aquades, perlakuan 1 (P1) diberi minuman ringan berkarbonasi dengan dosis 3 ml/200 gr/hari, perlakuan 2 (P2) 6 ml/200 gr/hari, dan perlakuan 3 (P3) dengan dosis 12 ml/200 gr/hari diberikan selama 30 hari.

**Hasil:** Rerata skor kerusakan mukosa lambung pada kelompok K:0,17, P1:0,7, P2:1,07, dan P3:1,53. Data yang diperoleh diuji menggunakan One Way ANOVA didapatkan penelitian bermakna  $p=0,00$ , dilanjutkan dengan *post hoc* LSD didapatkan perbedaan bermakna pada semua kelompok ( $p<0,05$ ).

**Simpulan:** Terdapat pengaruh pemberian minuman ringan berkarbonasi terhadap perubahan histopatologi lambung tikus putih (*Rattus norvegicus*) jantan galur *Sprague dawley*.

Kata Kunci: Minuman ringan berkarbonasi, histopatologi lambung, efek gastro intestinal, tikus putih.