From: "Rich Murray" <rmforall@comcast.net>
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Date: 3/31/2009 1:32 PM

http://rmforall.blogspot.com/2008_10_01_archive.htm
Wednesday, October 15, 2008
http://groups.yahoo.com/group/aspartameNM/message/1566

[ See also for similar results:

http://groups.yahoo.com/group/aspartameNM/message/961
genotoxins, Comet assay in mice: Ace-K, stevia fine; aspartame poor; sucralose, cyclamate, saccharin bad: Y.F. Sasaki Aug 2002:
Murray 2003.01.27 [A detailed look at the data]
]

Genotoxicity testing of low-calorie sweeteners: aspartame, acesulfame-K, and saccharin.
Bandyopadhyay A,
Ghoshal S,
Mukherjee A.
Centre of Advanced Study, Cell and Chromosome Research, Department of Botany, University of Calcutta, Kolkata, India.

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Low-calorie sweeteners are chemicals that offer the sweetness of sugar without the calories.

Consumers are increasingly concerned about the quality and safety of many products present in the diet, in particular, the use of low-calorie sweeteners, flavorings, colorings, preservatives, and dietary supplements. In the present study, we evaluated the mutagenicity of the three low-calorie sweeteners in the Ames/Salmonella/microsome test and their genotoxic potential by comet assay in the bone marrow cells of mice.

Swiss albino mice, Mus musculus, were orally administered with different concentrations of aspartame (ASP; 7, 14, 28, and 35 mg/kg body weight), acesulfame-K (ASK; 150, 300, and 600 mg/kg body weight), and saccharin (50, 100, and 200 mg/kg body weight) individually.

Concurrently negative and positive control sets were maintained.

The animals were sacrificed and the bone marrow cells were processed for comet assay.

The standard plate-incorporation assay was carried with the three sweeteners in Salmonella typhimurium TA 97a and TA 100 strains both in the absence and presence of the S9 mix.

The comet parameters of DNA were increased in the bone marrow cells due to the sweetener-induced DNA strand breaks, as revealed by
increased comet-tail extent and percent DNA in the tail.

ASK and saccharin were found to induce greater DNA damage than ASP.

However, none could act as a potential mutagen in the Ames/Salmonella/microsome test.

These findings are important, since they represent a potential health risk associated with the exposure to these agents. PMID: 18850355

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http://www.psgcas.ac.in/downloads/FreePaperpresentation.pdf

POSTER PRESENTATION (11.01.2007) THURSDAY SESSION IX (4.30 TO 6.00 PM)

PP 18 Atrayee Bandyopadhyay, et.al., atrayee.banerjee@gmail.com
Center for Advanced Study, Cell & Chromosome Research, Dept. of Botany, Univ of Calcutta , Kolkata
DNA damage induced by Aspartame a low calorie sweet

PP 10 Ms. Salma Ghosh & Anita Mukherjee, anitamukherjee28@gmail.com
Center of Advanced Study in cell & Chromosome Research, Dept. of Botany, Univ of Calcutta, Kolkata
Evaluation of DNA damage by ophenylenediamine in Allium assay

similar levels of daily formaldehyde and formic acid, causes of birth defects, come from cigarettes, aspartame, and dark wines and liquors -- folic acid protects most people: Rich Murray 2008.07.15 http://rmforall.blogspot.com/2008_07_01_archive.htm Tuesday, July 15, 2008 http://groups.yahoo.com/group/aspartameNM/message/1552

"A smoker who goes through one pack a day will smoke 7,300 cigarettes a year, inhaling the equivalent of nearly 1 gram of formaldehyde (yikes!)."

That's about 2.5 mg daily formaldehyde intake for 20 cigarettes, over the 2 mg USA FDA alarm level for formaldehyde in average 2 liters daily drinking water, while a single 12 oz can of diet soda also results in about 2 mg formaldehyde toxic products in the body, including formic acid, a notorious cause of birth defects.

Dark wines and liquors usually supply even more methanol, which the body always turns into formaldehyde and formic acid -- the major cause of "morning after" hangovers.

High levels of folic acid, a safe, affordable vitamin in fruits and vegetables, largely prevents formaldehyde and formic acid toxicity in most people.

It is certain that high levels of aspartame use, above 2 liters daily for months and years, must lead to chronic formaldehyde-formic acid toxicity.

Fully 11 % of aspartame is methanol -- 1,120 mg aspartame in 2 liters diet soda, almost six 12-oz cans, gives 123 mg methanol (wood alcohol). The methanol is immediately released into the body after drinking.
Within hours, the liver turns much of the methanol into formaldehyde,
and then much of that into formic acid, both of which in time are partially eliminated as carbon dioxide and water.

However, about 30% of the methanol remains in the body as cumulative durable toxic metabolites of formaldehyde and formic acid -- 37 mg daily, a gram every month, accumulating in and affecting every tissue.

If only 10% of the methanol is retained daily as formaldehyde, that would give 12 mg daily formaldehyde accumulation -- about 60 times more than the 0.2 mg from 10% retention of the 2 mg EPA daily limit for formaldehyde in drinking water.

Bear in mind that the EPA limit for formaldehyde in drinking water is 1 ppm, or 2 mg daily for a typical daily consumption of 2 liters of water.

formaldehyde and formic acid in FEMA trailers and other sources (aspartame, dark wines and liquors, tobacco smoke):
Murray 2008.01.30
http://rmforall.blogspot.com/2008_01_01_archive.htm
Wednesday, January 30, 2008
http://groups.yahoo.com/group/aspartameNM/message/1508

The FEMA trailers give about the same amount of formaldehyde and formic acid daily as from a quart of dark wine or liquor, or two quarts (6 12-oz cans) of aspartame diet soda, from their over 1 tenth gram methanol impurity (one part in 10,000), which the body quickly makes into formaldehyde and then formic acid -- enough to be the major cause of "morning after" alcohol hangovers.

Methanol and formaldehyde and formic acid also result from many fruits and vegetables, tobacco and wood smoke, heater and vehicle exhaust, household chemicals and cleaners, cosmetics, and new cars, drapes, carpets, furniture, particleboard, mobile homes, buildings, leather... so all these sources add up and interact with many other toxic chemicals.

http://rmforall.blogspot.com/2008_02_01_archive.htm
Sunday, February 24, 2008
http://groups.yahoo.com/group/aspartameNM/message/1524

http://groups.yahoo.com/group/aspartameNM/message/1469
highly toxic formaldehyde, the cause of alcohol hangovers, is made by the body from 100 mg doses of methanol from dark wines and liquors, dimethyl dicarbonate, and aspartame:
Murray 2007.08.31
http://groups.yahoo.com/group/aspartameNM/message/1286
methanol products (formaldehyde and formic acid) are main cause of alcohol hangover symptoms [same as from similar amounts of methanol, the 11% part of aspartame]: YS Woo et al, 2005 Dec:
Concentration changes of methanol in blood samples during an experimentally induced alcohol hangover state.
Woo YS, Yoon SJ, Lee HK, Lee CU, Chae JH, Lee CT, Kim DJ.
Chuncheon National Hospital, Department of Psychiatry, The Catholic University of Korea, Seoul, Korea.
http://www.cuk.ac.kr/eng/ sysop@catholic.ac.kr
A hangover is characterized by the unpleasant physical and mental symptoms that occur between 8 and 16 hours after drinking alcohol.

After inducing experimental hangover in normal individuals, we measured the methanol concentration prior to and after alcohol consumption and we assessed the association between the hangover condition and the blood methanol level.

A total of 18 normal adult males participated in this study.

They did not have any previous histories of psychiatric or medical disorders.

The blood ethanol concentration prior to the alcohol intake (2.26±2.08) was not significantly different from that 13 hours after the alcohol consumption (3.12±2.38).

However, the difference of methanol concentration between the day of experiment (prior to the alcohol intake) and the next day (13 hours after the alcohol intake) was significant (2.62±1.33/l vs. 3.88±2.10/l, respectively).

A significant positive correlation was observed between the changes of blood methanol concentration and hangover subjective scale score increment when covarying for the changes of blood ethanol level (r=0.498, p<0.05).

This result suggests the possible correlation of methanol as well as its toxic metabolite to hangover. PMID: 16318957

[The toxic metabolite of methanol is formaldehyde, which in turn partially becomes formic acid -- both potent cumulative toxins that are the actual cause of the toxicity of methanol.]

This study by Jones AW (1987) found next-morning hangover from red wine with 100 to 150 mg methanol (9.5 % w/v ethanol, 100 mg/l methanol, 0.01 %). Fully 11% of aspartame is methanol -- 1,120 mg aspartame in 2 L diet soda, almost six 12-oz cans, gives 123 mg methanol (wood alcohol).

Elimination half-life of methanol during hangover.
Jones AW. wayne.jones@RMV.se;
Department of Forensic Toxicology,
University Hospital, SE-581 85 Linkoping, Sweden.

This paper reports the elimination half-life of methanol in human volunteers.
Experiments were made during the morning after the subjects had consumed 1,000-1,500 ml red wine (9.5 % w/v ethanol, 100 mg/l methanol) the previous evening. [100 to 150 mg methanol]
The washout of methanol from the body coincided with the onset of hangover.
The concentrations of ethanol and methanol in blood were determined indirectly by analysis of end-expired alveolar air.
In the morning when blood-ethanol dropped below the Km of liver alcohol dehydrogenase (ADH) of about 100 mg/l (2.2 mM), the disappearance half-life of ethanol was 21, 22, 18 and 15 min. in 4 test subjects respectively.
The corresponding elimination half-lives of methanol
were 213, 110, 133 and 142 min. in these same individuals. The experimental design outlined in this paper can be used to obtain useful data on elimination kinetics of methanol in human volunteers without undue ethical limitations. Circumstantial evidence is presented to link methanol or its toxic metabolic products, formaldehyde and formic acid, with the pathogenesis of hangover. PMID: 3588516 ]

http://groups.yahoo.com/group/aspartameNM/message/1143
methanol (formaldehyde, formic acid) disposition, Bouchard M et al, full plain text, 2001 -- substantial sources are degradation of fruit pectins, liquors, aspartame, smoke: Murray 2005.01.05

http://groups.yahoo.com/group/aspartameNM/message/925

http://groups.yahoo.com/group/aspartameNM/message/1550 partial text

Thrasher JD, Kilburn KH. toxicologist@drthrasher.org; Embryo toxicity and teratogenicity of formaldehyde. [100 references] Arch Environ Health 2001 Jul-Aug; 56(4): 300-11. Sam-1 Trust, Alto, New Mexico, USA. (702) 987-4590 (505) 937-1150 http://www.drthrasher.org/formaldehyde_embryo_toxicity.html full text

"The major difference is that the Japanese demonstrated the incorporation of FA and its metabolites into the placenta and fetus. The quantity of radioactivity remaining in maternal and fetal tissues at 48 hours was 26.9 % of the administered dose." [ Ref. 14-16 ] The DNA fraction contained 20 % and 50% of total incorporated radioactivity in the maternal and fetal liver at 6 and 24 hours when compared to the acid insoluble fraction (Fig. 1). Of primary interest is that the incorporated radioactivity persisted longer in the fetal liver and brain when compared to the mothers."

The ASE review missed the actual details of this provocative study by an experienced team that continues to use the sensitive, fast, low cost automated Comet assay to measure DNA damage. The team tested 39 food additives, including 7 sweeteners, using groups of just 4 mice at a uniform oral dose of 2000 mg/kg bw, testing 8 organs at 3 or 24 hours later. However, each test group had an assigned control group, somehow selected from a total of 21 4-rat control groups. Although the aspartame control levels happened to be much higher than the averages for all 21 control groups, the aspartame values were about twice the control values, close to statistical significance, 3 hours after the oral dose, for stomach, colon, liver, bladder, and lung. Results for DNA damage for Ace-K and stevia were nil, while sucralse, cyclamate, and saccharin were significant for many tissues. This result, once again, cries out for thorough replication, with much larger groups of mice, using a variety of dose levels and test times, and testing many more tissues. A separate report confirmed that stevia was not genotoxic.

http://groups.yahoo.com/group/aspartameNM/message/935
Comet assay finds DNA damage from sucralose, cyclamate, saccharin in mice: Sasaki YF & Tsuda S Aug 2002: Murray 2003.01.01
[ Also borderline evidence, in this pilot study of 39 food additives, using test groups of 4 mice, for DNA damage from for stomach, colon, liver, bladder, and lung 3 hr after oral dose of 2000 mg/kg aspartame -- a very high dose. Methanol is the only component of aspartame that can lead to DNA damage. ]

http://groups.yahoo.com/group/aspartameNM/message/961

"Comparing the mean control values [average of all 21 control groups] to the values for the other 7 sweeteners:

Best is acesulfame K, with no significant or high values.

Good is glycyrrhizin (derived from licorice), two 1.4 ratios for Stomach and Brain.

Next is stevia, with one high value [above ratio 1.4], 9.48+-1.99 for Bladder, 2000 mg 3 hr, ratio 1.8.

Aspartame has high values for 2000 mg 3 hr for Stomach, Colon, Liver, Bladder, Lung.

Sucralose has 3 significant values and 13 high values, for Stomach, Colon, Kidney, Bladder, Lung, Brain.

Sodium cyclamate has 4 significant values and 10 high values for Stomach, Colon, Liver, Bladder, Lung, Brain, Bone.

Saccharin has 3 highly significant values for Colon, and 13 high values for Stomach, Colon, Kidney, Lung, Brain, Bone.

Sodium saccharin has 5 highly significant values for Stomach and Colon, and 14 high values for Stomach, Liver, Kidney, Bladder, Lung, Brain, Bone."

"For Liver, 5 of the 21 control groups, with values 1.67, 1.63, 1.29, 1.06, 1.65 would make some 3 hr aspartame values approach or reach significance.

Ratios about 2 for different tissues with aspartame that would be close to significant would exist for many of the 21 control groups: Stomach 1 Colon 5 Liver 5 Bladder 11 Lung 5.

The aspartame values at 3 hr are compared with the mean values for the 21 control groups:

Stomach ---- Colon ---- Liver ---- Kidney ---- Bladder ---- Lung

DNA Migration at 3 hr from 2000 mg/kg dose
8.49+-0.48,9.18+-0.56,3.26+-0.16,1.91+-0.26,10.7+-2.77,4.13+-1.26

mean of 21 control groups
6.31,------ 5.81,------ 2.15,------ 2.25, ------ 5.40, ----- 2.61,

range of values for 21 control groups
4.3-8.6 --- 4.0-8.1 --- 1.1-3.6 --- 1.2-2.9 --- 3.6-7.1 --- 1.6-4.7

ratio = DNA Migration/control mean
1.4, ------ 1.6, ------- 1.5, ------ 0.9, ------- 2.0, ------ 1.6

Brain -------- Bone [marrow]
0.37+-0.70, ---- 1.01+-0.59 DNA Migration at 3 hr from 2000 mg/kg
1.48, -------- 1.12, mean of 21 control groups 

0.8-2.6 -------- 0.6-1.9 range of values for 21 control groups 

0.3 -------------- 0.9, ratio = DNA Migration/control mean

Wouldn't the average of all the 21 control groups be the best control values to use?

What would then be the appropriate statistical test?

How many mice would it take to reach significance for the 5 tissues with ratios over 1.4: Stomach, Colon, Liver, Bladder, Lung?

Aspartame at 24 hours had levels too low to reach significance with any of the 21 control groups."

[ ASE reference 306: ]
Mutat Res 2002 Aug 26; 519(1-2): 103-19
The comet assay with 8 mouse organs: results with 39 currently used food additives.
Laboratory of Genotoxicity, Faculty of Chemical and Biological Engineering, Hachinohe National College of Technology, Tamonoki Uwanotai 16-1, Aomori 039-1192, Japan.
yfasaki-c@hachinohe-ct.ac.jp ; s.tsuda@iwate-u.ac.jp

We determined the genotoxicity of 39 chemicals currently in use as food additives. They fell into six categories-dyes, color fixatives and preservatives, preservatives, antioxidants, fungicides, and sweeteners.

We tested groups of four male ddY mice once orally with each additive at up to 0.5xLD(50) or the limit dose (2000 mg/kg) and performed the comet assay on the glandular stomach, colon, liver, kidney, urinary bladder, lung, brain, and bone marrow 3 and 24 h after treatment.

Of all the additives, dyes were the most genotoxic. Amaranth, Allura Red, New Coccine, Tartrazine, Erythrosine, Phloxine, and Rose Bengal induced dose-related DNA damage in the glandular stomach, colon, and/or urinary bladder.

All seven dyes induced DNA damage in the gastrointestinal organs at a low dose (10 or 100 mg/kg).

Among them, Amaranth, Allura Red, New Coccine, and Tartrazine induced DNA damage in the colon at close to the acceptable daily intakes (ADIs).

Two antioxidants (butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT)), three fungicides (biphenyl, sodium o-phenylphenol, and thiabendazole), and four sweeteners (sodium cyclamate, saccharin, sodium saccharin, and sucralose) also induced DNA damage in gastrointestinal organs.

Based on these results, we believe that more extensive assessment of food additives in current use is warranted. PMID: 12160896

details on 6 epidemiological studies since 2004 on diet soda (mainly aspartame) correlations, as well as 14 other mainstream studies on aspartame toxicity since summer 2005: Murray 2007.11.18
Wednesday, November 14, 2007
http://groups.yahoo.com/group/aspartameNM/message/1490
European Food Safety Authority EFSA wants aspartame (methanol, formaldehyde, formic acid) safety data by 2008.10.31 for 'Meeting of National Experts on Aspartame' in December: Rich Murray 2008.10.10
http://rmforall.blogspot.com/2008_10_01_archive.htm
Friday, October 10, 2008
http://groups.yahoo.com/group/aspartameNM/message/1566

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"Of course, everyone chooses, as a natural priority, to enjoy peace, joy, and love by helping to find, quickly share, and positively act upon evidence about healthy and safe food, drink, and environment."

http://RMForAll.blogspot.com new primary archive

http://groups.yahoo.com/group/aspartameNM/messages
group with 134 members, 1,567 posts in a public archive

http://groups.yahoo.com/group/aspartame/messages
group with 1,143 members, 22,992 posts in a public archive

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