

平成 16 年度内分泌攪乱化学物質における 食事調査結果

環境省環境保健部環境安全課

1. 目的

食事経路からの化学物質の暴露状況を調査するにあたって、食事中の内分泌攪乱化学物質の存在量を知るために実施するものである。

2. 調査内容

2.1. 調査対象物質

以下の8物質について調査分析を実施した。

ベンゾフェノン(以下「BP」と略す)

2,4-ジヒドロキシベンゾフェノン(以下「BP-1」と略す)

2,2',4,4'-テトラヒドロキシベンゾフェノン(以下「BP-2」と略す)

2-ヒドロキシ-4-メトキシベンゾフェノン(以下「BP-3」と略す)

2-ヒドロキシ-4-メトキシベンゾフェノン-5-スルホン酸(以下「BP-4」と略す)

2,2'-ジヒドロキシ-4,4'-ジメトキシベンゾフェノン(以下「BP-6」と略す)

2-ヒドロキシ-4-メトキシ-4'-メチルベンゾフェノン(以下「BP-10」と略す)

2-ヒドロキシ-4-オクチルオキシベンゾフェノン(以下「BP-12」と略す)

2.2. 調査媒体と調査時期

調査媒体；食事及びインスタント食品等

調査時期；平成16年12月～平成17年3月

2.3. 調査検体数

家庭内食事調査 50検体[50調査地点(家庭),陰膳方式により採取する3日間の食事を1検体とする。]

外食50検体,インスタント食品等50検体 計100検体

2.4. 調査地点(家庭)及び調査食品(外食,インスタント食品等)の選定

全国の調査対象物質の暴露量を知るためにもっとも適した調査地点(家庭)及び調査食品を選定した。

3. 試料の収集

3.1. 家庭内食事調査(陰膳調査)

全国10ブロックとして、北海道、宮城県、東京都、長野県、愛知県、石川県、大阪府、愛媛県、福岡県及び沖縄県で各5家庭を選定し、連続3日間の食事を1日分毎に、陰膳方

式により集めた。なお、調査試料採取に当たり、食事試料採取要領を作成し、各調査世帯に配布した。1日分の食事試料は、原則翌日に宅配便(冷凍)で分析機関に発送された。

3.2. 外食、インスタント食品等

外食は、全国展開をしているチェーン店を中心に東京地区で入手可能な食事の収集を行った。それぞれ異なるファーストフード店5店、和風ファーストフード店5店、ファミリーレストラン5店、ステーキレストラン・焼肉店5店、すし店5店、ラーメン・そば・うどん・パスタ店5店、中華料理店5店、その他の食堂5店、コンビニエンスストア・弁当店5店およびパン店5店より持ち出し可能な食事を各1食購入した。食事内容として、定食及びその店舗での定番メニューを優先的に選定し、合計50点の食事試料を収集した。

インスタント食品等は、東京地区のスーパーマーケットで入手可能な冷凍食品10種(冷凍ピラフ、冷凍うどん、冷凍スパゲッティ、点心類、冷凍ハンバーグ、冷凍おにぎり、冷凍惣菜、冷凍野菜、冷凍フライ、冷凍ピザ)、レトルト食品10種(レトルトカレー、レトルトスパゲッティ、ソース類、ベビーフード、洋風スープ、中華スープ、ごはん、かゆ、惣菜、その他のレトルト食品)、インスタント食品10種(カップラーメン、カップうどん、カップ焼きそば、ラーメン(袋)、インスタントスープ、フリーズドライベビーフード、トン汁、粉ミルク、ごはん、パスタ)、缶詰6種(缶スープ、調理素材缶詰、水煮缶、シロップ漬缶、調理済み缶詰、ミートソース缶)、瓶詰4種(ピクルス類、ジャム、ベビーフード、佃煮)、惣菜10種の合計50点の試料を購入した。これらのインスタント食品等は、必要に応じてパッケージ等に記載された方法に従って簡単な調理を行ったものを、混合均質化し食事試料とした。

4. 試料の分析

4.1. 試料の調製

分析機関に到着した家庭内食事試料は、冷凍で保管し、1世帯3日分の食事試料を1検体とし、半解凍した後汚染に細心の注意を払いながらステンレス製ミキサーを用いすばやく混合均質化し、密封できる容器に入れた。

外食、インスタント食品等は、入手後または調理後速やかに汚染に細心の注意を払いながらステンレス製ミキサーを用いすばやく混合均質化し、密封できる容器に入れた。

4.2. 試料の保管

試料調製後、直ちに調査対象物質の分析に着手した。ただし、分析法開発の進行上試料保管の必要がある場合には、分析直前まで冷凍(-20℃)で保管した。

4.3. 分析法の概要

酸性下メタノールで抽出後，BP，BP -1，BP -2，BP -3，BP -6，BP -10 及び BP -12 を酢酸エチルに転溶し，ゲル浸透クロマトグラフィー(GPC)及びシリカゲルカラムクロマトグラフィーにより精製した後，液体クロマトグラフ 質量分析計(LC/MS/MS)で測定した。BP 4 については，酢酸エチル転溶時の水層を陰イオン交換カラムクロマトグラフィーにより精製した後，LC/MS/MS で測定した。

5. 調査結果

分析結果一覧及び検出状況を別表 -1 ~ 5 に示した。

調査結果の概略を以下に示した。

5.1. 家庭内食事調査

BPは50検体中1検体から検出された(検出率2 %，3 µg/kg)。

BP -1，BP -2，BP -3，BP -4，BP -6，BP -10及びBP -12はすべての試料から検出されなかった。

5.2. 外食調査

BPは50検体中1検体から検出された(検出率2 %，3 µg/kg)。

BP -1，BP -2，BP -3，BP -4，BP -6，BP -10及びBP -12はすべての試料から検出されなかった。

5.3. インスタント食品等調査

BP，BP -1，BP -2，BP -3，BP -4，BP -6，BP -10及びBP -12はすべての試料から検出されなかった。

5. 考 察

これまでに、国内でベンゾフェノン類について食事調査に関する報告はない。

神奈川県調査で、肉類および魚介類から高頻度に検出されたという報告があるが、その濃度については不明である。

内分泌かく乱作用に関して、ほ乳類を用いた試験では、低用量での明らかな内分泌かく乱作用は認められていない。高用量では一般毒性と考えられる影響が認められている。魚類を用いた試験では、明らかな内分泌かく乱作用は認められていない¹⁾。

有害性に関する情報として反復投与毒性試験では、げっ歯類において主に肝臓、腎臓への影響が認められている。変異原性・遺伝毒性では *in vitro* , *in vivo* とともに陰性と報告されている。発がん性については実験動物で皮膚の塗布試験で腫瘍の発生率増加は認められていない。2世代繁殖毒性試験の結果から無影響量 (NOEL) は 100 ppm と報告されている²⁾。

一方、海外では、EU においてパッケージ（冷凍食品の容器やピザの箱など）からの移行について基準値が設定されており、これからベンゾフェノンの耐容一日摂取量 (Tolerable Daily Intake; TDI) が 0.01 mg/kg 体重/日と設定されている^{3),4)}。(European Commission Scientific Committee on Food)

TDI が 0.01mg/kg 体重/日の時の食事時の濃度は、一日の食事量を 2 kg、成人の体重 50 kg とすると、0.25 mg/kg と計算される。本調査における最大濃度は 3×10^{-3} mg/kg であり、TDI のおよそ 1/100 の濃度である。

参考文献

- 1 . 化学物質の内分泌攪乱作用に関する環境省の今後の対応方針について - EXTEND2005 - 環境省 2005 年 3 月
- 2 . 「ベンゾフェノンの有害性評価」経済産業省 2005 年 4 月 13 日
http://www.meti.go.jp/policy/chemical_management/sonota/endocrine/benzophenone.pdf
- 3 . Food Standard Agency UK Benzophenone from Cartonboard (Number 06/00)
http://www.food.gov.uk/science/surveillance/fsis_2000/6benzo
- 4 . EU directive 90/128/EEC, EU directive 2001/62/EC
http://europa.eu.int/comm/food/food/chemicalsafety/foodcontact/legisl_list_en.htm

表1 内分泌攪乱化学物質に係る食事調査 分析結果一覧

調査年度：2004年度

媒体名：家庭内食事調査(陰膳調査)

ブロック	都道府県	No.	BP	BP-1	BP-2	BP-3	BP-4	BP-6	BP-10	BP-12
定量下限			1	1	1	1	1	1	1	1
1	北海道	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2	宮城県	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
3	東京都	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
4	長野県	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
5	愛知県	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
6	石川県	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
7	大阪府	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
8	愛媛県	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
9	福岡県	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
10	沖縄県	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

単位：μg/kg
N.D.：検出せず

BP:ベンゾフェノン

BP-1:2,4-ジヒドロキシベンゾフェノン

BP-2:2,2',4,4'-テトラヒドロキシベンゾフェノン

BP-3:2-ヒドロキシ-4-メトキシベンゾフェノン

BP-4:2-ヒドロキシ-4-メトキシベンゾフェノン-5-スルホン酸

BP-6:2,2'-ジヒドロキシ-4,4'-ジメトキシベンゾフェノン

BP-10:2-ヒドロキシ-4-メトキシ-4'-メチルベンゾフェノン

BP-12:2-ヒドロキシ-4-オクチルオキシベンゾフェノン

表2 内分泌攪乱化学物質に係る食事調査 分析結果一覧
 調査年度：2004年度 媒体名：外食

番号	種類	BP	BP -1	BP -2	BP -3	BP -4	BP -6	BP -10	BP -12
	定量下限	1	1	1	1	1	1	1	1
外-1	ファーストフード	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-2		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-3		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-4		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-5		3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-6	和風ファーストフード	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-7		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-8		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-9		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-10		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-11	ファミリーレストラン	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-12		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-13		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-14		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-15		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-16	ステーキレストラン・焼肉屋	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-17		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-18		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-19		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-20		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-21	すし店	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-22		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-23		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-24		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-25		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-26		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-27	ラーメン・そば・うどん・パスタ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-28		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-29		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-30		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-31	中華料理	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-32		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-33		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-34		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-35		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-36	その他の食堂	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-37		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-38		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-39		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-40		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-41	弁当店	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-42		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-43		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-44		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-45		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-46	パン店	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-47		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-48		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-49		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
外-50		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

単位：μg/kg
 N.D.：検出せず

表3 内分泌攪乱化学物質に係る食事調査 分析結果一覧

調査年度：2004年度

媒体名：インスタント食品等

番号	種類	品目	BP	BP -1	BP -2	BP -3	BP -4	BP -6	BP -10	BP -12
定量下限			1	1	1	1	1	1	1	1
イ-1	冷凍食品	冷凍ピラフ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-2		冷凍うどん	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-3		冷凍パケッティ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-4		点心類	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-5		冷凍ハンバーグ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-6		冷凍おにぎり	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-7		冷凍惣菜	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-8		冷凍野菜	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-9		冷凍フライ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-10		冷凍ピザ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-11	レトルト食品	レトルトカレー	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-12		レトルトパケッティ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-13		ソース類	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-14		パピート	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-15		洋風スープ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-16		中華スープ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-17		ごはん	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-18		かゆ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-19		惣菜	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-20		その他のレトルト食品	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-21	インスタント食品	カップラーメン	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-22		カップうどん	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-23		カップ焼きそば	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-24		ラーメン(袋)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-25		インスタントスープ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-26		フリーズドライパピート	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-27		トン汁	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-28		粉ミルク	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-29		ごはん	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-30		パスタ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-31	缶詰食品	缶スープ	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-32		料理素材缶詰	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-33		水煮缶	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-34		シロップ漬缶	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-35		調理済み缶詰	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-36		ミートソース缶	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-37	びん詰食品	ピクルス類	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-38		ジャム	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-39		パピート	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-40		佃煮	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-41	惣菜	惣菜-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-42		惣菜-2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-43		惣菜-3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-44		惣菜-4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-45		惣菜-5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-46		惣菜-6	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-47		惣菜-7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-48		惣菜-8	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-49		惣菜-9	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
イ-50		惣菜-10	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

単位：μg/kg

N.D.：検出せず

表4 家庭内食事調査における調査対象物質の検出状況

調査年度：2004年度

媒体名：家庭内食事調査(陰膳調査)

	定量下限値以上を検出した食事試料数 / 調査試料数							
	BP	BP -1	BP -2	BP -3	BP -4	BP -6	BP -10	BP -12
定量下限 ($\mu\text{g}/\text{kg}$)	1	1	1	1	1	1	1	1
北海道	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
宮城県	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
東京都	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
長野県	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
愛知県	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
石川県	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
大阪府	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
愛媛県	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
福岡県	1/5 (20%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
沖縄県	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
最小値 ($\mu\text{g}/\text{kg}$)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
最大値 ($\mu\text{g}/\text{kg}$)	3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
中央値 ($\mu\text{g}/\text{kg}$)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
範囲 ($\mu\text{g}/\text{kg}$)	N.D. ~ 3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
平均値* ($\mu\text{g}/\text{kg}$)	3	-	-	-	-	-	-	-

N.D.：検出せず

*：検出されたものの平均値を示した。

表5 外食・インスタント食品における調査対象物質の検出状況

調査年度：2004年度

媒体名：外食・インスタント食品

	定量下限値以上を検出した食事試料数 / 調査試料数							
	BP	BP -1	BP -2	BP -3	BP -4	BP -6	BP -10	BP -12
定量下限 ($\mu\text{g}/\text{kg}$)	1	1	1	1	1	1	1	1
ファーストフード	1/5 (20%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
和風ファーストフード	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
ファミリーレストラン	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
ステーキレストラン・焼 肉屋	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
すし	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
ラーメン・そば・うどん・ パスタ	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
中華料理	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
食堂	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
弁当	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
パン	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)	0/5 (0%)
冷凍食品	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
レトルト食品	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
インスタント食品	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
缶詰食品	0/6 (0%)	0/6 (0%)	0/6 (0%)	0/6 (0%)	0/6 (0%)	0/6 (0%)	0/6 (0%)	0/6 (0%)
びん詰食品	0/4 (0%)	0/4 (0%)	0/4 (0%)	0/4 (0%)	0/4 (0%)	0/4 (0%)	0/4 (0%)	0/4 (0%)
惣菜	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
最小値 ($\mu\text{g}/\text{kg}$)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
最大値 ($\mu\text{g}/\text{kg}$)	3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
中央値 ($\mu\text{g}/\text{kg}$)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
範囲 ($\mu\text{g}/\text{kg}$)	N.D. ~3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
平均値* ($\mu\text{g}/\text{kg}$)	3	-	-	-	-	-	-	-

N.D. : 検出せず

* : 検出されたものの平均値を示した。