

Outbreaks from Tree Nuts, Peanuts, and Sesame Seeds: Table and References

To repost or cite, please use the following citation: Harris, L. J., M. Palumbo, L. R. Beuchat, and M. D. Danyluk. 2017. Outbreaks of foodborne illness associated with the consumption of tree nuts, peanuts, and sesame seeds [Table and references]. *In* Outbreaks from tree nuts, peanuts, and sesame seeds. Available at: http://ucfoodsafety.ucdavis.edu/Nuts_and_Nut_Pastes.

Outbreaks of foodborne illness associated with the consumption of tree nuts, peanuts, and sesame seeds

Type	Product (source)	<i>Salmonella enterica</i> serovar or other pathogen	Year	Number of cases	Isolated from product?	Outbreak location(s)	Source
Tree nuts							
Almond	raw whole (California)	S. Enteritidis PT 30	2000–01	168	yes	Canada, USA	CDPH, 2002; Chan et al., 2002; Isaacs et al., 2005
	raw whole (California)	S. Enteritidis PT 9c	2004	47	no	Canada, USA	CDC, 2004; CDPH, 2004
	raw whole (California?)	S. Enteritidis NST 3+ (aka PT 30)	2005–06	15	no	Sweden	Ledet Müller et al., 2007
	raw whole (Australia)	S. Typhimurium	2012	27	yes	Australia	FSANZ, 2012; Whitworth, 2012 (and personal communication)
	almond and/or peanut butter	S. Braenderup	2014	6	no (yes from environment samples)	USA (CT, IA, NM, TN, TX)	CDC, 2014b
Cashew	sprouted almond and cashew-almond spreads	S. Paratyphi B (aka S. Java)	2015	11	no	USA (CA, CO, GA, HI, ID, IL, NC, NJ, OR)	CDC, 2015
	peanut/cashew mix (not stated)	S. Typhimurium PT 170	2010	19	yes	Australia	OzFoodNet, 2010
	raw cashew “cheese” ¹ (California; cashews from SE Asia)	S. Stanley	2013	17	yes	USA (CA, NV, WY)	CDPH, 2013b; CDC, 2014a; Whitworth, 2014
	sprouted cashew and cashew-almond spreads	S. Paratyphi B (aka S. Java)	2015	13	no	USA (CA, CO, GA, HI, ID, IL, ME, NC, NJ, OR)	CDC, 2016a; FDA, 2016a

Type	Product (source)	<i>Salmonella enterica</i> serovar or other pathogen	Year	Number of cases	Isolated from product?	Outbreak location(s)	Source
Coconut	desiccated (Papua New Guinea)	S. Typhi, S. Senftenberg and possibly others	1953	>50 (est. from epi curve)	yes	Australia	Wilson and Mackenzie, 1955
	desiccated (Sri Lanka;	S. Paratyphi B	1960–61	3	yes	England	Semple et al., 1961
	desiccated (not stated)	S. Java PT Dundee	1999	18	yes	United Kingdom	Ward et al., 1999
Hazelnut	in-shell (Oregon)	<i>E. coli</i> O157:H7	2010–11	2 (Canada) 8 (USA)	yes	Canada, USA (WI, MN, MI)	CDPH, 2013a; CDC, 2011a; Farber, 2015 (personal communication); Miller et al., 2012
	in-shell (Oregon)	S. Typhimurium	2016	5	yes	USA (OR)	Beach, 2017; OHA, 2017
	sprouted hazelnut spread	S. Paratyphi B (aka S. Java)	2015	11	no	USA (CA, CO, GA, HI, ID, IL, NC, NJ, OR)	CDC, 2015
Pine nut	whole, bulk (Turkey)	S. Enteritidis	2011	43	yes	USA (MD, NY, NJ, PA, VA)	CDC, 2011b
Pistachio	roasted (California)	S. Senftenberg	2013	8	yes	USA (CA, KS, MA, MD, PA, WI)	US FDA, 2014
	roasted inshell and shelled (California)	S. Montevideo S. Senftenberg	2015–16	11	yes	USA (AL, AZ, CT, GA, MI, MN, ND, VA, WA)	CDC, 2016b; US FDA, 2016b
Walnut	raw shelled halves, pieces, walnut crumbs (California)	<i>E. coli</i> O157:H7	2011	14	no	Canada	CFIA, 2011; Health and Safety Watch, 2011; PHAC, 2011

¹The “cheese” was a non-dairy product made from cashews, water, and other ingredients.

Type	Product (Source)	<i>Salmonella enterica</i> serovar or other pathogen	Year	Number of cases	Isolated from product?	Outbreak location(s)	Source
Peanuts							
Peanut	boiled peanuts (Taiwan)	<i>C. botulinum</i> type A	1986	9 total 2 fatal	yes (toxin)	Taiwan	Chou et al., 1988; Tsai et al., 1990
	savory snack (Israel)	<i>S. Agona</i> PT 15	1994–95	71	yes	Israel, United Kingdom, USA	Killelea et al., 1996; Shohat et al., 1996; Threlfall et al., 1996
	peanut butter (Australia)	<i>S. Mbandaka</i>	1996	15	yes	Australia	Scheil et al., 1998
	flavored or roasted in-shell (Asia)	<i>S. Stanley</i> and <i>S. Newport</i>	2001	97 Stanley 12 Newport	yes	Australia, Canada, United Kingdom	Kirk et al., 2004
	boiled (USA)	<i>S. Thompson</i>	2006	100	yes	USA (South Carolina)	Marler Clark LLP, 2006; ProMED-mail, 2006; Christian et al., 2007
	peanut/cashew mix (not stated)	<i>S. Typhimurium</i> PT 170	2010	19	yes, but not same MLVA	Australia	OzFoodNet, 2010
	peanut butter (USA)	<i>S. Tennessee</i>	2006–07	715	yes	USA (48 states)	CDC, 2007a, 2007b; Sheth et al., 2011
	peanut butter (not stated)	<i>C. botulinum</i> (serotypes A and B) ²	2006–08	5	yes (spores)	Canada	Sheppard et al., 2012
	peanut butter, peanut butter-containing products (USA)	<i>S. Typhimurium</i>	2008–09	714	yes	USA (46 states), one case in Canada	Cavallaro et al., 2011; CDC, 2009, 2010
	peanut butter (USA)	<i>S. Bredeney</i>	2012	42	no	USA (20 states)	CDC, 2012a, 2013a
	Almond and/or peanut butter	<i>S. Braenderup</i>	2014	6	no (yes from environment samples)	USA (CT, IA, NM, TN, TX)	CDC, 2014b

² Outbreak of intestinal toxemia botulism, which is very rare; two of three patients studied had a history of Crohn's disease and bowel surgery.

Type	Product (Source)	<i>Salmonella enterica</i> serovar or other pathogen	Year	Number of cases	Isolated from product?	Outbreak location(s)	Source
Seeds							
Sesame seed	halva (Turkey)	S. Typhimurium DT 104	2001	17 (Aust.) 27 (Sweden) 18 (Norway)	yes	Australia, Germany, Norway, Sweden, United Kingdom	Aavitsland et al., 2001; Brockmann, 2001; de Jong et al., 2001; Little, 2001; O'Grady et al., 2001
	tahini (Egypt)	S. Montevideo	2002	55	yes	Australia	Tauxe et al., 2008; Unicomb et al., 2005
	tahini (Lebanon)	S. Montevideo	2003	3	yes	Australia	Unicomb et al., 2005
	tahini and halva (Lebanon)	S. Montevideo	2003	10	yes	New Zealand	Unicomb et al., 2005
	tahini (Lebanon) and hummus (made from the tahini)	S. Bovismorbificans	2011	23	yes	USA (7 states)	CDC, 2012b
	tahini (Turkey) and hummus (made from the tahini)	S. Montevideo S. Mbandaka S. Maastricht	2012	12 3 1	yes	New Zealand	NZPHS, 2013; Paine et al., 2014
	tahini (Turkey)	S. Montevideo, S. Mbandaka	2013	16	yes	USA (9 states)	CDC, 2013b
	sesame-based food products (incl. tahini and seeds)	<i>Salmonella enterica</i> 11:z41:enz15 (new serotype)	2016– 2017	40	yes	EU Member States (Greece, Germany, Czech Republic, Luxembourg)	ECDC, 2017

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