

List of Viruses shown to be inhibited or destroyed by photocatalysts

Host	Virus	Reference
Bacteroides fragilis	Not specified	Armon et al. (1998)
Birds	Influenza (avian) A/H5N2	Guillard et al. (2008)
E. coli	Coliphage	Guimarães and Barretto (2003)
E. coli	φ	Gerrity et al. (2008)
E. coli	T4	Ditta et al. (2008), Sheel et al. (2008)
E. coli	λ vir	Yu et al. (2008)
E. coli	λNM1149	Belhácová et al. (1999)
E. coli	φX174	Gerrity et al. (2008)
E. coli	MS2	Sjogren and Sierka (1994), Greist et al. (2002), Cho et al. (2004, 2005), Sato and Taya (2006a, b) , Vohra et al. (2006), Gerrity et al. (2008)
E. coli	Qβ	Lee et al. (1997), Otaki et al. (2000)
Human	Hepatitis B virus surface antigen HBsAg	Zan et al. (2007)
Human	Influenza A/H1N1	Lin et al. (2006)
Human	Influenza A/H3N2	Kozlova et al. (2010)
Human	Norovirus	Kato et al. (2005)
Human	Poliovirus type 1 (ATCC VFR-192)	Watts et al. (1995)
Human	SARS coronavirus	Han et al. (2004)
Human	Vaccinia	Kozlova et al. (2010)
Lactobacillus casei	PL-1	Kakita et al. (1997, 2000), Kashige et al. (2001)
Salmonella typhimurium	PRD1	Gerrity et al. (2008)

Examples of E. coli strains shown to be killed

Organism

Escherichia coli WO3
 Escherichia coli
 Escherichia coli ATCC 8739
 Escherichia coli ATCC 11229
 Escherichia coli ATCC 13706
 Escherichia coli ATCC 10536
 Escherichia coli ATCC 15153
 Escherichia coli ATCC 23505
 Escherichia coli ATCC 23631
 Escherichia coli ATCC 25922
 Escherichia coli ATCC 25922
 Escherichia coli ATCC 27325
 Escherichia coli ATCC-39713
 Escherichia coli CAH57 (ESBL)
 Escherichia coli CCRC 10675
 Escherichia coli CECT 101
 Escherichia coli DH 4α
 Escherichia coli DH5α
 Escherichia coli HB101
 Escherichia coli HB101
 Escherichia coli IFO 3301
 Escherichia coli IM303
 Escherichia coli JM109
 Escherichia coli K12 ATCC10798

 Escherichia coli K12 ATCC10798
 Escherichia coli K12 (ATCC 23716)
 Escherichia coli K12 (ATCC 2363)
 Escherichia coli K12

 Escherichia coli K12
 Escherichia coli MG1655
 Escherichia coli MM294
 Escherichia coli NCIMB-4481
 Escherichia coli PHL1273
 Escherichia coli PHL1273
 Escherichia coli S1400/95
 Escherichia coli 078
 Escherichia coli XLI Blue MRF

Reference

Tatsuma et al. (2003)
 Vohra et al. (2006)
 Cho et al. (2005)
 Kühn et al. (2003)
 Rodriguez et al. (2007)
 Brook et al. (2007), Dittat al. (2008)
 Ibáñez et al. (2003)
 Shieh et al. (2006)
 Sichel et al. (2007a)
 Sökmen et al. (2001)
 Ryu et al. (2008)
 Huang et al. (2000) Maness et al. (1999)
 Matsunaga et al. (1995)
 Dunlop et al. (2010)
 Liu and Yang (2003)
 Kubacka et al. (2008b)
 Lan et al. (2007)
 Belhácová et al. (1999) Yu et al. (2002, 2003b)
 Bekbölet and Araz (1996), Bekbölet (1997)
 Coleman et al. (2005)
 Kikuchi et al. (1997) Sunada et al. (2003b)
 Sato et al. (2003)
 Yu et al. (2002)
 Duffy et al. (2004) McLoughlin et al. (2004a, b)
 Pal et al. (2007)
 Pal et al. (2008)
 Rincon and Pulgarin (2003, 2004a)
 Marugan et al. (2008)
 Fernandez et al. (2005) Gumy et al. (2006a, b)
 Quisenberry et al. (2009)
 Dunlop et al. (2002)
 Gogniat and Dukan (2007)
 Kim et al. (2004)
 Butterfield et al. (1997)
 Benabbou et al. (2007)
 Guillard et al. (2008)
 Robertson et al. (2005)
 Choi et al. (2004)
 Yu et al. (2002)

Other Gram-negative bacteria shown to be killed

Organism

Acinetobacter
 Acinetobacter baumannii
 Aeromonas hydrophila AWWX1
 Anabaena
 Bacteroides fragilis
 Coliforms
 Coliforms
 Edwardsiella tarda
 Enterobacter aerogenes
 Enterobacter cloacae SMI
 Erwinia carotovora subsp. Carotovora
 Erwinia carotovora subsp. carotovora ZL1,
 subsp. Carotovora 3, subsp. Carotovora 7
 Faecal coliforms
 Flavobacterium sp.
 Fusobacterium nucleatum
 Legionella pneumophila ATCC 33153
 Legionella pneumophila CCRC 16084
 Legionella pneumophila GIFU-9888
 Microcystis
 Porphyromonas gingivalis
 Prevotella intermedia
 Proteus vulgaris
 P. aeruginosa
 P. aeruginosa environmental isolate
 P. aeruginosa PA01
 P. aeruginosa
 P. aeruginosa
 P. fluorescens R2F
 P. fluorescens B22
 Pseudomonas sp.
 Pseudomonas stutzeri NCIMB11358
 Pseudomonas syringae pv tomato
 Pseudomonas tolaasi
 Salmonella choleraesuis
 Salmonella enteritidis Typhimurium
 Salmonella enteritidis Typhimurium
 Serratia marcescens

 Shigella flexneri
 Vibrio parahaemolyticus
 Vibrio parahaemolyticus VP 144
 Vibrio vulnificus

Reference

Kashyout et al. (2006)
 Cheng et al. (2009)
 Kersters et al. (1998)
 Kim and Lee (2005)
 Tsuang et al. (2008)
 Araña et al. (2002)
 Watts et al. (1995)
 Cheng et al. (2008)
 Ibáñez et al. (2003)
 Yao et al. (2007a)
 Muszkat et al. (2005)

 Yao et al. (2007a, b, 2008a, b)
 Watts et al. (1995)
 Cohen-Yaniv et al. (2008)
 Suketa et al. (2005), Bai et al. (2007)
 Cheng et al. (2007)
 Li et al. (2003)
 Dadjour et al. (2005, 2006)
 Kim and Lee (2005)
 Chun et al. (2007)
 Mo et al. (2007)
 Matsunaga et al. (1985)
 Kühn et al. (2003)
 Amezaga-Madrid et al. (2002, 2003)
 Gage et al. (2005)
 Luo et al. (2008)
 Yao et al. (2008c)
 Kersters et al. (1998)
 Skorb et al. (2008)
 Muralcedharan et al. (2003)
 Biguzzi and Shama (1994)
 Muszkat et al. (2005)
 Sawada et al. (2005)
 Kim et al. (2003)
 Ibáñez et al. (2003), Cushnie et al. (2009)
 Cho et al. (2007a, b)
 Block et al. (1997)
 Goswami et al. (1999)
 Cheng et al. (2009)
 Kim et al. (2003)
 Hara-Kudo et al. (2006)
 Song et al. (2008)

Gram-positive bacteria shown to be killed

Organism

Actinobacillus actinomycetemcomitans
 Actinomyces viscosus
 Bacillus cereus
 Bacillus cereus spores
 Bacillus megaterium QM B1551)
 Bacillus pumilis spores ATCC 27142
 Bacillus sp.
 Bacillus subtilis vegetative cells and endospores
 Bacillus subtilis endospores
 Bacillus thuringiensis
 Clavibacter michiganensis
 Clostridium difficile
 Clostridium perfringens spores NCIMB 6125
 Clostridium perfringens spores
 Deinococcus radiophilus
 Enterococcus (Streptococcus) faecalis
 Enterococcus (Streptococcus) faecalis Immobilised
 Enterococcus faecalis CECT 481
 Enterococcus faecium
 Enterococcus hirae
 Enterococcus sp.
 Lactobacillus acidophilus
 Lactobacillus helveticus CCRC 13936
 Lactococcus lactis 411
 Listeria monocytogenes
 Microbacterium sp. Microbacteriaceae str. W7
 Micrococcus luteus
 Micrococcus lylae
 MRSA
 MRSA
 Mycobacterium smegmatis
 Porphyromonas gingivalis
 Paenibacillus sp SAFN-007
 Staphylococcus aureus
 Staphylococcus aureus
 Staphylococcus epidermidis NCTC11047
 Staphylococcus saprophyticus
 Streptococcus cricetus
 Streptococcus iniae
 Streptococcus mutans
 Streptococcus mutans GS5, LM7, OMZ175
 Streptococcus pyogenes ery_r cam_r
 Streptococcus rattus FA-1
 Streptococcus sobrinus AHT

Reference

Suketa et al. (2005)
 Nagame et al. (1989)
 Cho et al. (2007a)
 Armon et al. (2004)
 Fu et al. (2005)
 Pham et al. (1995, 1997)
 Rincón and Pulgarin (2005)
 Wolfrum et al. (2002)
 Greist et al. (2002)
 Kozlova et al. (2010)
 Muszkat et al. (2005)
 Dunlop et al. (2010)
 Butterfield et al. (1997)
 Guimarães and Barretto (2003)
 Laot et al. (1999)
 Herrera Melián et al. (2000)
 Singh et al. (2005)
 Vidal et al. (1999)
 Kühn et al. (2003)
 Tsuang et al. (2008)
 Rincón and Pulgarin (2005)
 Matsunaga et al. (1985), Choi et al. (2007a)
 Liu and Yang (2003)
 Skorb et al. (2008)
 Kim et al. (2003)
 Pal et al. (2007)
 Wolfrum et al. (2002)
 Yu et al. (2005b)
 Chen et al. (2008)
 Oka et al. (2008)
 Kozlova et al. (2010)
 Shiraishi et al. (1999)
 Pal et al. (2007)
 Block et al. (1997)
 Shiraishi et al. (1999)
 Sheel et al. (2008)
 Chen et al. (2008)
 Nagame et al. (1989)
 Cheng et al. (2008)
 Chun et al. (2007)
 Saito et al. (1992)
 Chen et al. (2008)
 Saito et al. (1992)
 Saito et al. (1992)

Protozoa and algae shown to be killed

Organism

Protozoa

Acanthamoeba castellanii
 Only 50% kill for cysts, trophozoites were sensitive
 Acanthamoeba polyphaga environmental isolate
 Cryptosporidium parvum
 Cryptosporidium parvum
 Giardia sp. Fibrous
 Giardia intestinalis cysts
 Giardia lamblia
 Tetrahymena pyriformis

Algae

Amphidinium corterae
 Chlorella vulgaris
 Cladophora sp.
 Chroococcus sp. 27269
 Melosira sp.
 Oedogonium sp.
 Tetraselmis suecica

Reference

Protozoa

Sökmen et al. (2008)
 50% kill for cysts, trophozoites were sensitive
 Lonnen et al. (2005)
 Ryu et al. (2008)
 Curtis et al. (2002)
 Navalon et al. (2009)
 Sökmen et al. (2008)
 Lee et al. (2004)
 Peng et al. (2010)

Algae

Rodriguez-Gonzalez et al. (2010)
 Matsunaga et al. (1985)
 Peller et al. (2007)
 Hong et al. (2005)
 Kim and Lee (2005)
 Linkous et al. (2000)
 Rodriguez-Gonzalez et al. (2010)