Supplementary information

Figure S1: Search string used to screen the SCOPUS and CAB ABSTRACT databases to select articles related to the impact of stressors on *Apis mellifera* published between 2007 and 2017.

(**TITLE-ABS-KEY** ("*Apis mellifera*" OR honeybees OR "honey bees") **AND TITLE-ABS-KEY** (stress OR pathogens OR pest OR parasites OR virus OR bacteria OR predator OR mites OR fungus OR protozoa OR varroa OR nosema OR ascosphaera OR acarapis OR crithidia OR foulbrood OR "vespa velutina" OR pesticides OR xenobiotic OR agrochemical OR insecticide OR fungicide OR herbicide OR acaricide OR miticide OR neonicotinoid OR imidacloprid OR acetamiprid OR clothianidin OR thiacloprid OR thiamethoxam OR GMO OR "essential oils" OR thymol OR camphor OR menthol OR eucalyptus OR antibiotics OR "organic acid" OR "formic acid" OR "oxalic acid" OR "beekeeping practices" OR "management practices" OR feeding OR "queen rearing" OR supersedure OR "heavy metal" OR "climate change" OR "habitat fragmentation" OR "habitat loss" OR "food resources" OR pop) **AND (TITLE-ABS-KEY** ("gene expression" OR transcriptome OR "DNA methylation" OR transcripts OR "oxidative stress" OR antioxidant OR catalase OR "superoxide dismutase" OR glutathione OR immunity OR immune OR "antimicrobial peptide" vitellogenin OR detoxification OR P450 OR carboxylesterase OR "metabolic pathways" OR trehalose OR "sugar level" OR cuticle OR "colony collapse disorder" OR decline OR "colony loss" OR "colony strength" OR "honey production" OR overwintering OR brood OR behavior OR locomotion OR "muscle coordination" OR paralysis OR spasm OR memory OR learning OR flight OR navigation OR orientation OR homing OR "foraging efficiency" OR "pollen collection" OR communication OR "proboscis extension" OR survival OR death OR mortality OR health OR weight OR size OR "sperm viability" OR "reproductive success" OR reproduction OR "mating frequency" OR supersedure OR longevity OR lifespan OR 10HDA OR dance) **OR TITLE** (impact OR effect OR influence OR toxicity OR affect OR impair OR induce)) **AND NOT TITLE** (rat OR mice OR bumblebees OR "solitary bees" OR cerana OR "bumble bee" or "wild bee" or stingless or venom or bombus or cancer or tumor or human or osmia) AND (LIMIT-TO (LANGUAGE,"English ")) **AND PUBYEAR** > 2006 **AND DOCTYPE** (ar OR re).

Figure S2: list of stressors considered as "anecdotal" to discard related articles from the review on the impact of stressors on *Apis mellifera* published between 2007 and 2017.

Alkaloids (caffeine, cocaine), chemical elements (cobalt, bismuth, manganese, selenium, iron), Q10 coenzyme, fipronil enantiomers, pyridine derivatives, diesel exhaust, nanoparticles, inactive ingredients, chitosan, propolis, essential oils and organic acids not used in beekeeping, plant extracts, elicitors, repellents, probiotics, nutritional restriction, omega3 deficiency, colony size and dietary supplements, magnetism, parasites geographical distribution, geographical location, recycled waters, age, CO_2, winter flights, wing wear and color of leafhopper traps.

Table S1: list of the 293 articles related to the impact of stressors on *Apis mellifera* published between 2007 and 2017 included in the analysis

AUTHORS	TITLE	YEAR	JOURNAL	Reference
Abramson, C. I., *et al.*	The effect of ethanol on reversal learning in honey bees (*Apis mellifera* anatolica): Response inhibition in a social insect model.	2015	Alcohol	Abramson *et al.* (2015) *Alcohol* **49(3)**:245-58
Abramson, C. I., *et al.*	The effect of pymetrozine (Plenum WG-50 ®) on proboscis extension conditioning in honey bees (*Apis mellifera*: Hybrid var. Buckfast).	2012	Ecotoxicology and Environmental Safety	Abramson *et al.* (2012) *Ecotoxicol. Environ. Saf.* **78**:287-95
Afik, O. and S. Shafir	Effect of ambient temperature on crop loading in the Honey Bee, *Apis mellifera* (Hymenoptera: Apidae).	2007	Entomologia Generalis	Afik *et al.* (2007) *Entomol. Gen.* **29(2):**135-48
Akca, I., *et al.*	Residual toxicity of 8 different insecticides on Honey Bee (*Apis mellifera* Hymenoptera: Apidae).	2009	Journal of Animal and Veterinary Advances	Akca *et al.* (2009) *J. Anim. Vet. Adv.* **8(3):**436-40
Akyol, E. and H. Yeninar	The effects of varroa (Varroa destructor) infestation level on wintering ability and survival rates of honeybee (*Apis mellifera* L.) colonies.	2011	Journal of Animal and Veterinary Advances	Akyol *et al.* (2011) *J. Anim. Vet. Adv.* **10(11):**1427-30
Akyol, E., *et al.*	Effects of queen ages on Varroa (Varroa destructor) infestation level in honey bee (*Apis mellifera* caucasica) colonies and colony performance.	2007	Italian Journal of Animal Science	Akyol *et al.* (2007) *Ital. J. Anim. Sci.* **6:**143-9
Al Naggar, Y., *et al.*	Effects of environmentally-relevant mixtures of four common organophosphorus insecticides on the honey bee (*Apis mellifera* L.).	2015	Journal of Insect Physiology	Al Naggar *et al.* (2015*) J. Insect Physiol.* **82**:85-91
Al-Alawi, M. S.	Efficacy of essential oils from medicinal plants in control of the hairy rose beetle, tropinota squalida (scopoli) and their comparative toxicity to the honey bee, *Apis mellifera* L.	2014	American Journal of Agricultural and Biological Science	Al-Alawai (2014) *Am. J. Agr. Biol. Sci.* **9(3)**:284-8
Alattal, Y. and A. Alghamdi	Impact of temperature extremes on survival of indigenous and exotic honey bee subspecies, *Apis mellifera*, under desert and semiarid climates.	2015	Bulletin of Insectology	Alattal *et al.* (2015*) Bull. Insectol.* **68(2):**219-22
Alaux, C., *et al.*	Diet effects on honeybee immunocompetence.	2010	Biology Letters	Alaux *et al.* (2010) *Biol. Lett.* **6(4)**:562-5
Alaux, C., *et al.*	Interactions between Nosema microspores and a neonicotinoid weaken honeybees (*Apis mellifera*).	2010	Environmental Microbiology	Alaux *et al.* (2010) *Environ. Microbiol.* **12(3)**: 774–82
Alaux, C., *et al.*	Nutrigenomics in honey bees: digital gene expression analysis of pollen's nutritive effects on healthy and varroa-parasitized bees.	2011	BMC Genomics	Alaux *et al.* (2011) *BMC Genomics* **12**:496
Alaux, C., *et al.*	Pathological effects of the microsporidium *Nosema ceranae* on honey bee queen physiology (*Apis mellifera*).	2011	Journal of Invertebrate Pathology	Alaux *et al.* (2011) *J. Invertebr. Pathol.* **106(3)**:380-5.
Alayrangues, J., *et al.*	Prolonged effects of in-hive monoterpenoids on the honey bee *Apis mellifera*.	2016	Ecotoxicology	Alayrangues *et al.* (2016)

				Ecotoxicology **25(5)**:856-62.
Alburaki, M., *et al.*	Neonicotinoid-coated Zea mays seeds indirectly affect honeybee performance and pathogen susceptibility in field trials.	2015	PLoS One	Alburaki *et al.* (2015*) PLoS One* **10(5)**:e0125790
Alburaki, M., *et al.*	Performance of honeybee colonies located in neonicotinoid-treated and untreated cornfields in Quebec.	2017	Journal of Applied Entomology	Alburaki *et al.* (2017) *J. Appl. Entomol.* **141**:1-2
Aliouane, Y., *et al.*	Subchronic exposure of honeybees to sublethal doses of pesticides: Effects on behavior.	2009	Environmental Toxicology and Chemistry	Aliouane *et al.* (2009) *Environ. Toxicol. Chem.* **28(1)**:113-22
Aljedani, D. M. and R. M. Almehmadi	Effects of some insecticides on longevity of the foragers honey bee worker of local honey bee race *Apis mellifera* jemenatica.	2016	Electronic Physician	Aljedani *et al.* (2016) *Electron. Physician.* **8(1)**:1843-9
Alkassab, A. T. and W. H. Kirchner	Impacts of chronic sublethal exposure to clothianidin on winter honeybees.	2016	Ecotoxicology	Alkassab *et al.* (2016) *Ecotoxicology* **25(5)**:1000-10
Al-mazra'awi, M. S.	Impact of the entomopathogenic fungus Beauveria bassiana on the honey bees, *Apis mellifera* (Hymenoptera: Apidae).	2007	World Journal of Agricultural Sciences	Al-mazra'awi (2007) *World J. Agric. Sci.* **3:**7-11
Alptekin, S., *et al.*	Induced thiacloprid insensitivity in honeybees (*Apis mellifera* L.) is associated with up-regulation of detoxification genes.	2016	Insect Molecular Biology	Alptekin *et al.* (2016) *Insect Mol. Biol.* **25(2)**:171-80
Alquisira-Ramírez, E. V., *et al.*	In vitro susceptibility of Varroa destructor and *Apis mellifera* to native strains of Bacillus thuringiensis.	2014	Apidologie	Alquisira-Ramírez *et al.* (2014) *Apidologie* **45**:707
Andrione, M., *et al.*	Neonicotinoid-induced impairment of odour coding in the honeybee.	2016	Scientific Reports	Andrione *et al.* (2016) *Sci. Rep.* **6**:38110
Anguiano-Baez, R., *et al.*	Varroa destructor (mesostigmata: Varroidae) parasitism and climate differentially influence the prevalence, levels, and overt infections of deformed wing virus in honey bees (hymenoptera: Apidae).	2016	Journal of Insect Science	Anguiano-Baez *et al.* (2016) *J. Insect Sci.* **16(1)**:44
Annoscia, D., *et al.*	How does the mite Varroa destructor kill the honeybee *Apis mellifera*? Alteration of cuticular hydrcarbons and water loss in infested honeybees.	2012	Journal of Insect Physiology	Annoscia *et al.* (2012) *J. Insect Physiol.* **58(12)**: 1548-55
Annoscia, D., *et al.*	Mite infestation during development alters the in-hive behaviour of adult honeybees.	2015	Apidologie	Annoscia *et al.* (2015) *Apidologie* **46**:306
Aronstein, K. A., *et al.*	How varroa parasitism affects the immunological and nutritional status of the honey bee, *Apis mellifera*.	2012	Insects	Aronstein *et al.* (2012) *Insects* **3(3)**: 601–15
Aronstein, K. A., *et al.*	Transcriptional responses in Honey Bee larvae infected with chalkbrood fungus.	2010	BMC Genomics	Aronstein *et al.* (2010) *BMC Genomics* **11**:391
Asha, *et al.*	Effect of Varroa destructor Anderson and Trueman infestation on *Apis mellifera* L. brood.	2010	Pest Management	Asha *et al.* (2010) *Pest*

			and Economic Zoology	*Management and Economic Zoology* **18(1-2)**: 96-103
Aufauvre, J., *et al.*	Transcriptome analyses of the honeybee response to *Nosema ceranae* and insecticides.	2014	PLoS One	Aufauvre *et al.* (2014*) PLoS One* **9(3)**:e91686
Ayoub, *et al.*	Impact of Varroa mite infestation on the Mandibular and Hypopharyngeal glands of honey bee workers.	2015	Acarina	Ayoub *et al.* (2015) *Acarina* **23:**92-7
Badawy, M. E. I., Nasr, H. M., Rabea, E. I.	Toxicity and biochemical changes in the honey bee *Apis mellifera* exposed to four insecticides under laboratory conditions	2015	Apidologie	Badawy *et al.* (2015) *Apidologie* **46**:177
Badiou, A., *et al.*	Honeybee *Apis mellifera* acetylcholinesterase-A biomarker to detect deltamethrin exposure.	2008	Ecotoxicology and Environmental Safety	Badiou *et al.* (2008) *Ecotoxicol. Environ. Saf*. **69(2)**:246-53
Badiou-Beneteau, A., *et al.*	Development of biomarkers of exposure to xenobiotics in the honey bee *Apis mellifera*: Application to the systemic insecticide thiamethoxam.	2012	Ecotoxicology and Environmental Safety	Badiou-Beneteau *et al.* (2012) *Ecotoxicol. Environ. Saf.* **82**:22-31
Bahreini, R. and R. W. Currie	Influence of Honey Bee Genotype and Wintering Method on Wintering Performance of Varroa destructor (Parasitiformes: Varroidae)-Infected Honey Bee (Hymenoptera: Apidae) Colonies in a Northern Climate.	2015	Journal of Economic Entomology	Bahreini *et al.* (2015) *J. Econ. Entomol*. **108(4)**:1495-505
Bahreini, R. and R. W. Currie	The influence of Nosema (Microspora: Nosematidae) infection on honey bee (Hymenoptera: Apidae) defense against Varroa destructor (Mesostigmata: Varroidae).	2015	Journal of Invertebrate Pathology	Bahreini *et al.* (2015) *J. Invertebr. Pathol.* **132**:57-65
Balbuena, M. S., *et al.*	Effects of sublethal doses of glyphosate on honeybee navigation.	2015	Journal of Experimental Biology	Balbuena *et al.* (2015) *J. Exp. Biol.* **218**:2799-805
Beliën, T., *et al.*	Effects of sublethal doses of crop protection agents on honey bee (*Apis mellifera*) global colony vitality and its potential link with aberrant foraging activity.	2009	Communications in agricultural and applied biological sciences	Beliën *et al.* (2009) *Commun. Agric. Appl. Biol. Sci.* **74(1):**245-53
Ben Abdelkader, F., *et al.*	Effects of some insecticides on the viability and the ATP synthesis of honeybee drone's spermatozoid in vitro exposed.	2015	Tunisian Journal of Plant Protection	Ben Abdelkader *et al.* (2015) *Tunisian Journal of Plant Protection* **10(1)**:79-93
Benaets, K., *et al.*	Covert deformed wing virus infections have long-term deleterious effects on honeybee foraging and survival.	2017	Proceedings of the Royal Society B: Biological Sciences	Benaets *et al.* (2017) *Proc. Bio.l Sci*. **284**:1848
Berger, B., *et al.*	Beekeeping practice: effects of *Apis mellifera*	2016	Apidologie	Berger *et al.*

	virgin queen management on ovary development.			(2016) *Apidologie* **47**: 589
Bergougnoux, M., *et al.*	Exposure to thymol decreased phototactic behaviour in the honeybee (*Apis mellifera*) in laboratory conditions.	2013	Apidologie	Bergougnoux *et al.* (2013) *Apidologie* **44**:82
Bernadou, A., *et al.*	Effect of fipronil on side-specific antennal tactile learning in the honeybee.	2009	Journal of Insect Physiology	Bernadou *et al.* (2009) *J. Insec. Physiol. .* **55(12):**1099-106
Berry, J. A., *et al.*	Field-Level Sublethal Effects of Approved Bee Hive Chemicals on Honey Bees (*Apis mellifera* L).	2013	PLoS One	Berry *et al.* (2013*) PLoS One* **8(10):** e76536
Bevk, D., *et al.*	Coumaphos affects food transfer between workers of honeybee *Apis mellifera*.	2012	Apidologie	Bevk *et al.* (2012) *Apidologie* **43**:465
Boily, M., *et al.*	Acetylcholinesterase in honey bees (*Apis mellifera*) exposed to neonicotinoids, atrazine and glyphosate: Laboratory and field experiments.	2013	Environmental Science and Pollution Research	Boily *et al.* (2013) *Environ. Sci. Pollut. Res.* **20(8)**:5603-14.
Boncristiani, H., *et al.*	Direct effect of acaricides on pathogen loads and gene expression levels in honey bees *Apis mellifera*.	2012	Journal of Insect Physiology	Boncristiani *et al.* (2012) J. Insect Physiol. **58(5):**613-20
Bonnafe, E., *et al.*	Effect of a thymol application on olfactory memory and gene expression levels in the brain of the honeybee *Apis mellifera*.	2015	Environmental Science and Pollution Research	Bonnafe *et al.* (2015) *Environ. Sci. Pollut. Res.* **22(11)**:8022-30
Bonnafe, E., *et al.*	Monoterpenoid-based preparations in beehives affect learning, memory, and gene expression in the bee brain.	2017	Environmental Toxicology and Chemistry	Bonnafe *et al.* (2017) *Environ. Toxicol. Chem.* **36(2)**:337-45
Borsuk, G., *et al.*	Impact of nosemosis on the intestinal yeast flora of honey bees.	2013	Medycyna Weterynaryjna	Borsuk *et al.* (2013) *Medycyna weterynaryjna* **69(12):**726-9
Botías, C., *et al.*	*Nosema spp.* infection and its negative effects on honey bees (*Apis mellifera iberiensis*) at the colony level.	2013	Veterinary Research	Botías *et al.* (2013) *Vet. Res.* **44(1**):25
Boyce, W. M., *et al.*	Nontarget effects of the mosquito adulticide pyrethrin applied aerially during a West Nile virus outbreak in an urban California environment.	2007	Journal of the American Mosquito Control Association	Boyce *et al.* (2007*) J. Am. Mosq. Control Assoc.* **23(3**):335-9
Brandt, A., *et al.*	The neonicotinoids thiacloprid, imidacloprid, and clothianidin affect the immunocompetence of honey bees (*Apis mellifera* L.).	2016	Journal of Insect Physiology	Brandt *et al.* (2016) *J. Insect Physiol.* **86**:40-7
Bray, A. and J. Nieh	Non-consumptive predator effects shape honey bee foraging and recruitment dancing.	2014	PLoS One	Bray *et al.* (2014) *PLoS One* **9(1)**:e87459
Burden, C. M., *et al.*	Acute exposure to selenium disrupts associative conditioning and long-term memory recall in honey bees (*Apis mellifera*).	2016	Ecotoxicology and Environmental Safety	Burden *et al.* (2016) *Ecotoxicol. Environ. Saf.*

				127:71-9
Cabrera-Marín, N. V., *et al.*	The effect of application rate of GF-120 (Spinosad) and Malathion on the Mortality of *Apis mellifera* (Hymenoptera: Apidae) foragers.	2016	Journal of Economic Entomology	Cabrera-Marín *et al.* (2016) *J. Econ. Entomol.* **109(2)**:515-9
Calatayud-Vernich, P., *et al.*	Influence of pesticide use in fruit orchards during blooming on honeybee mortality in 4 experimental apiaries.	2016	Science of the Total Environment	Calatayud-Vernich *et al.* (2016) *Sci. Total Environ.* **541**:33-41
Carayon, J. L., *et al.*	Thymol as an alternative to pesticides: Persistence and effects of Apilife Var on the phototactic behavior of the honeybee *Apis mellifera*.	2014	Environmental Science and Pollution Research	Carayon *et al.* (2014) *Environ. Sci. Pollut. Res*. **21(7)**:4934-9
Carrasco-Letelier, L., *et al.*	Acute contact toxicity test of insecticides (Cipermetrina 25, Lorsban 48E, Thionex 35) on honeybees in the southwestern zone of Uruguay.	2012	Chemosphere	Carrasco-Letelier *et al.* (2012) *Chemosphere* **88(4)**:439-44
Carrasco-Letelier, L., *et al.*	Acute contact toxicity test of oxalic acid on honeybees in the southwestern zone of Uruguay.	2012	Chilean Journal of Agricultural Research	Carrasco-Letelier *et al.* (2012) *Chilean J. Agr. Res.* **72(2):**285-9
Carvalho, S. M., *et al.*	Enzymatic biomarkers as tools to assess environmental quality: a case study of exposure of the honeybee *Apis mellifera* to insecticides.	2013	Environmental Toxicology and Chemistry	Carvalho *et al.* (2013) *Environ. Toxicol. Chem*. **32(9)**:2117-24
Chaimanee, V., *et al.*	Sperm viability and gene expression in honey bee queens (*Apis mellifera*) following exposure to the neonicotinoid insecticide imidacloprid and the organophosphate acaricide coumaphos.	2016	Journal of Insect Physiology	Chaimanee *et al.* (2016) *J. Insect Physiol.* **89**:1-8
Chang, L. H., *et al.*	Effects of the juvenile hormone analogue methoprene on rate of behavioural development, foraging performance and navigation in honey bees (*Apis mellifera*).	2015	Journal of Experimental Biology	Chang *et al.* (2015) *J. Exp. Biol.* **218(11)**:1715-24
Charbonneau, L. R., *et al.*	Effects of *Nosema apis, N. ceranae*, and coinfections on honey bee (*Apis mellifera*) learning and memory.	2016	Scientific Reports	Charbonneau *et al.* (2016) *Sci. Rep.* **6**:22626
Charpentier, G., *et al.*	Lethal and sub-lethal effects of thymol on honeybee (*Apis mellifera*) larvae reared in vitro.	2014	Pest Management Science	Charpentier *et al.* (2014) *Pest Manag. Sci*. **70(1)**:140-7
Charreton, M., *et al.*	A locomotor deficit induced by sublethal doses of pyrethroid and neonicotinoid insecticides in the honeybee *Apis mellifera*.	2015	PLoS One	Charreton *et al.* (2015) *PLoS One* **10(12):** e0144879
Chaskopoulou, A., *et al.*	Nontarget effects of aerial mosquito adulticiding with water-based unsynergized pyrethroids on honey bees and other beneficial insects in an agricultural ecosystem of North Greece.	2014	Journal of Medical Entomology	Chaskopoulou *et al.* (2014*) J. Med. Entomol.* **51(3)**:720-4
Chauzat, M. P., *et al.*	Influence of pesticide residues on honey bee (Hymenoptera: Apidae) colony health in France.	2009	Environmental Entomology	Chauzat *et al.* (2009) *Environ. Entomol*. **38(3)**:514-23
Chen, Y., *et al.*	The impact of pyriproxyfen on the development of honey bee (*Apis mellifera* L.) colony in field.	2016	Journal of Asia-Pacific Entomology	Chen *et al.* (2016) *J. Asia-Pacific Entomol.*

				19(3):589-94
Christen, V., *et al.*	Binary mixtures of neonicotinoids show different transcriptional changes than single neonicotinoids in honeybees (*Apis mellifera*).	2017	Environmental Pollution	Christen *et al.* (2017) *Environ. Pollut.* **220(Pt B)**:1264-70
Christen, V., *et al.*	Molecular Effects of Neonicotinoids in Honey Bees (*Apis mellifera*).	2016	Environmental Science and Technology	Christen *et al.* (2016) *Environ. Sci. Technol*. **50(7)**:4071-81
Ciarlo, T. J., *et al.*	Learning impairment in honey bees caused by agricultural spray adjuvants.	2012	PLoS One	Ciarlo *et al.* (2012) *PLoS One* **7(7):** e40848
Cizelj, I., *et al.*	Prochloraz and coumaphos induce different gene expression patterns in three developmental stages of the Carniolan honey bee (*Apis mellifera* carnica Pollmann).	2016	Pesticide Biochemistry and Physiology	Cizelj *et al.* (2016) *Pestic. Biochem. Physiol.* **128**:68-75
Collins, A. M. and J. S. Pettis	Correlation of queen size and spermathecal contents and effects of miticide exposure during development.	2013	Apidologie	Collins *et al.* (2013) *Apidologie* **44**:351
Cornman, R. S., *et al.*	Transcriptional Response of Honey Bee Larvae Infected with the Bacterial Pathogen Paenibacillus larvae.	2013	PLoS One	Cornman *et al.* (2013) *PLoS One* **8(6)**: e65424
Costa, C., *et al.*	Effect of thymol and resveratrol administered with candy or syrup on the development of *Nosema ceranae* and on the longevity of honeybees (*Apis mellifera* L.) in laboratory conditions.	2010	Apidologie	Costa *et al.* (2010) *Apidologie* **41(2)**:141-50
Costa, E. M., *et al.*	Toxicity of insecticides used in the Brazilian melon crop to the honey bee *Apis mellifera* under laboratory conditions.	2014	Apidologie	Costa *et al.* (2014) *Apidologie* **45**:34
Cousin, M., *et al.*	Size Changes in Honey Bee Larvae Oenocytes Induced by Exposure to Paraquat at Very Low Concentrations.	2013	PLoS One	Cousin *et al.* (2013*) PLoS One* **8(5)**:e65693
Cutler, G. C. and C. D. Scott-Dupree	Exposure to clothianidin seed-treated canola has no long-term impact on honey bees.	2007	Journal of Economic Entomology	Cutler *et al.* (2007) *J. Econ. Entomol*. **100(3)**:765-72
Cutler, G. C., *et al.*	A large-scale field study examining effects of exposure to clothianidin seed-treated canola on honey bee colony health development, and overwintering success.	2014	PeerJ	Cutler *et al.* (2014) *PeerJ*. **2**:e652
D'Urso, V., *et al.*	Observations on midgut of *Apis mellifera* workers (Hymenoptera: Apoidea) under controlled acute exposures to a Bacillus thuringiensis-based biopesticide.	2017	Apidologie	D'Urso *et al.* (2017) *Apidologie* **48**:51
Dahlgren, L., *et al.*	Comparative toxicity of acaricides to honey bee (Hymenoptera: Apidae) workers and queens.	2012	Journal of Economic Entomology	Dahlgren *et al.* (2012) *J. Econ. Entomol*. **105(6)**:1895-902
Dai, P. L., *et al.*	Effects of sublethal concentrations of bifenthrin and deltamethrin on fecundity, growth, and development of the honeybee *Apis mellifera* ligustica.	2010	Environmental Toxicology and Chemistry	Dai *et al.* (2010) *Environ. Toxicol. Chem*. **29(3)**:644-9
Dawit, M., *et al.*	Effects of some insecticidal chemicals under	2015	African Journal	Dawit *et al.*

	laboratory condition on honeybees [*Apis mellifera* L. (Hymenoptera: Apidae)] that forage on onion flowers.		of Agricultural Research	(2015) *African J. of Agr. Res.* **10(11):**1295-300
Decourtye, A., *et al.*	Honeybee tracking with microchips: A new methodology to measure the effects of pesticides.	2011	Ecotoxicology	Decourtye *et al.* (2011) *Ecotoxicology* **20(2)**:429-37
DeGrandi-Hoffman, G., *et al.*	Comparisons of pollen substitute diets for honey bees: Consumption rates by colonies and effects on brood and adult populations.	2008	Journal of Apicultural Research	DeGrandi-Hoffman *et al.* (2008) *J. of Api. Res.* **47(4)**:265-70
Degrandi-Hoffman, G., *et al.*	Effects of oral exposure to fungicides on honey bee nutrition and virus levels.	2015	Journal of Economic Entomology	Degrandi-Hoffman *et al.* (2015) *J. Econ. Entomol.* **108(6)**:2518-28
DeGrandi-Hoffman, G., *et al.*	The effect of diet on protein concentration, hypopharyngeal gland development and virus load in worker honey bees (*Apis mellifera* L.).	2010	Journal of Insect Physiology	DeGrandi-Hoffman *et al.* (2010) *J. Insect. Physiol.* **56(9)**:1184-91
DeGrandi-Hoffman, G., *et al.*	The effects of pesticides on queen rearing and virus titers in honey bees (*Apis mellifera* L.).	2013	Insects	DeGrandi-Hoffman *et al.* (2013) *Insects* **4(1)**:71-89
Delgado, D. L., *et al.*	Forecasting the influence of climate change on agroecosystem services: Potential impacts on honey yields in a small-island developing state.	2012	Psyche	Delgado *et al.* (2012) *Psyche*
Derecka, K., *et al.*	Transient Exposure to Low Levels of Insecticide Affects Metabolic Networks of Honeybee Larvae.	2013	PLoS One	Derecka *et al.* (2013) *PLoS One* **8(7):**e68191
Desai, S. D. and R. W. Currie	Effects of wintering environment and parasite-Pathogen interactions on honey bee colony loss in north temperate regions.	2016	PLoS One	Desai *et al.* (2016) *PLoS One* **11(7):** e0159615
Devinder, S. and D. P. Abrol	Effect of insecticides on foraging behaviour and pollination role of *Apis mellifera* L. (Hymenoptera: Apidae) on toria (Brassica campestris var. toria) crop.	2014	Egyptian Journal of Biology	Devinder *et al.* (2014) *Egyptian J. Biol.* **16**
Di Pasquale, G., *et al.*	Influence of Pollen Nutrition on Honey Bee Health: Do Pollen Quality and Diversity Matter?	2013	PLoS One	Di Pasquale *et al.* (2013) *PLoS One* **8(8):**e72016
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	asymmetry in honey bees (*Apis mellifera* Linnaeus).			*Chemosphere* **83(4):**585-92
Oruc, H. H., *et al.*	Determination of acute oral toxicity of flumethrin in honey bees.	2012	Journal of Economic Entomology	Oruc *et al.* (2012*) J. Econ. Entomol*. **105(6):**1890-4
Pajuelo, A. G., *et al.*	Colony losses: A double blind trial on the influence of supplementary protein nutrition and preventative treatment with fumagillin against *Nosema ceranae*.	2008	Journal of Apicultural Research	Pajuelo *et al.* (2008) *J. Apic. Res.* **47(1):**84-6
Papezíková, I., *et al.*	The effect of oxalic acid applied by sublimation on honey bee colony fitness: a comparison with amitraz.	2016	Acta Veterinaria Brno	Papezíková *et al.* (2016) *Acta Vet. Brno* **85**: 255-60
Pearce, F. C. R., *et al.*	Hive relocation does not adversely affect honey bee (Hymenoptera: Apidae) foraging.	2013	Psyche: A Journal of Entomology	Pearce *et al.* (2013) *Psyche: A Journal of Entomology* **(3)**
Peters, L., *et al.*	Effect of primer pheromones and pollen diet on the food producing glands of worker honey bees (*Apis mellifera* L.).	2010	Journal of Insect Physiology	Peters *et al.* (2010) *J. Insect. Physiol.* **56(2):**132-7
Pettis, J. S., *et al.*	Crop pollination exposes honey bees to pesticides which alters their susceptibility to the gut pathogen *Nosema ceranae*.	2013	PLoS One	Pettis *et al.* (2013*) PLoS One* **8(7):** e70182
Pileckas, V., *et al.*	Toxic properties and efficiency of ecological and chemical preparations in treatment of *Apis mellifera* bee colonies.	2015	Journal of Food, Agriculture and Environment	Pileckas *et al.* (2015) *J. Food Agric. Environ.* **13(1)**:93-6
Pilling, E., *et al.*	A Four-Year Field Program Investigating Long-Term Effects of Repeated Exposure of Honey Bee Colonies to Flowering Crops Treated with Thiamethoxam.	2013	PLoS One	Pilling *et al.* (2013) *PLoS One* **8(10):**e77193
Piou, V., *et al.*	Impact of the phoretic phase on reproduction and damage caused by varroa destructor (Anderson and Trueman) to its host, the european honey bee (*Apis mellifera* L.).	2016	PLoS One	Piou *et al.* (2016) *PLoS One* **11(4):**e0153482
Pistorius, J., *et al.*	Application of predefined doses of neonicotinoid containing dusts in field trials and acute effects on honey bees.	2015	Bulletin of Insectology	Pistorius *et al.* (2015) *Bull. Insectol.* **68(2):** 161-72
Pohorecka, K., *et al.*	Residues of neonicotinoid insecticides in bee collected plant materials from oilseed rape crops and their effect on bee colonies.	2012	Journal of Apicultural Science	Pohorecka *et al.* (2012) *J. Apic. Sci.* **56(2)** :115–34
Pohorecka, K., *et al.*	Effects of exposure of honey bee colonies to neonicotinoid seed-treated maize crops.	2013	Journal of Apicultural Science	Pohorecka *et al.* (2013) *J. Apic. Sci.* **57(2**):199-208
Polykretis, P., *et al.*	Evidence of immunocompetence reduction induced by cadmium exposure in honey bees (*Apis mellifera*).	2016	Environmental Pollution	Polykretis *et al.* (2016) *Environ. Pollut.* **218**:826-34
Ptaszynska A.A., *et al.*	Impact of ethanol on *Nosema spp.* infected bees.	2013	Medycyna Weterynaryjna	Ptaszynska *et al.* (2013*) Med. Weter***. 69(12)**

Qualls, W. A., *et al.*	Impact of bifenthrin on honeybees and Culex quinquefasciatus.	2010	Journal of the American Mosquito Control Association	Qualls *et al.* (2010) *J. Am. Mosq. Control Assoc.* **26(2):**223-5
Rabea, E. I., *et al.*	Toxic effect and biochemical study of chlorfluazuron, oxymatrine, and spinosad on honey bees (*Apis mellifera*).	2010	Archives of Environmental Contamination and Toxicology	Rabea *et al.* (2010) *Arch. Environ. Contam. Toxicol*. **58(3):**722-32
Radoi, I., *et al.*	Stress induced alterations in the main biochemical parameters of the hemolimph of Apis melifera carpathica in Romania.	2011	Scientific Works, C Series, Veterinary Medicine	Radoi *et al.* (2011) *Sci. Works C Series Vet. Med.* **57(3):**183-8
Ramirez-Romero, R., *et al.*	Does Cry1Ab protein affect learning performances of the honey bee *Apis mellifera* L. (Hymenoptera, Apidae)?	2008	Ecotoxicology and Environmental Safety	Ramirez-Romero *et al.* (2008) *Ecotoxicol. Environ. Saf.* **70(2):**327-33
Rangel, J. and D. R. Tarpy	The combined effects of miticides on the mating health of honey bee (*Apis mellifera* L.) queens.	2015	Journal of Apicultural Research	Rangel *et al.* (2015) *J. Apic. Res.* **54(3)**:275-83
Rasuli, F., *et al.*	The acute oral toxicity of commonly used pesticides in Iran, to honeybees (*Apis mellifera* meda).	2015	Journal of Apicultural Science	Rasuli *et al.* (2015 *J. Apic. Sci.* **59(1)** :17-26
Renzi, M. T., *et al.*	Chronic toxicity and physiological changes induced in the honey bee by the exposure to fipronil and Bacillus thuringiensis spores alone or combined.	2016	Ecotoxicology and Environmental Safety	Renzi *et al.* (2016) *Ecotoxicol. Environ. Saf.* **127**:205-13
Renzi, M. T., *et al.*	Combined effect of pollen quality and thiamethoxam on hypopharyngeal gland development and protein content in *Apis mellifera*.	2016	Apidologie	Renzi *et al.* (2016) *Apidologie* **47(6)** :779–88
Retschnig, G., *et al.*	Effects, but no interactions, of ubiquitous pesticide and parasite stressors on honey bee (*Apis mellifera*) lifespan and behaviour in a colony environment.	2015	Environmental Microbiology	Retschnig *et al.* (2015) *Environ. Microbiol.* **17(11):**4322-31
Rinkevich, F. D., *et al.*	Genetics, synergists, and age affect insecticide sensitivity of the honey bee, *Apis mellifera*.	2015	PLoS One	Rinkevich *et al.* (2015) *PLoS One* **10(10**):e0139841
Rinkevich, F. D., *et al.*	Influence of varroa mite (Varroa destructor) management practices on insecticide sensitivity in the honey bee (*Apis mellifera*).	2017	Insects	Rinkevich *et al.* (2017*) Insects* **8(1):**9
Rolke, D., *et al.*	Large-scale monitoring of effects of clothianidin-dressed oilseed rape seeds on pollinating insects in Northern Germany: effects on honey bees (*Apis mellifera*).	2016	Ecotoxicology	Rolke *et al.* (2016) *Ecotoxicology* **25(9):**1648-65
Rose, R., *et al.*	Effects of Bt corn pollen on honey bees: Emphasis on protocol development.	2007	Apidologie	Rose *et al.* (2007) *Apidologie* **38(4)**:368-77
Rueppell, O., *et al.*	Early life stress affects mortality rate more than social behavior, gene expression or oxidative	2017	Experimental Gerontology	Rueppell *et al.* (2017) *Exp.*

	damage in honey bee workers.			*Geront.* **90:**19-25
Sandrock, C., *et al.*	Impact of chronic neonicotinoid exposure on honeybee colony performance and queen supersedure.	2014	PLoS One	Sandrock *et al.* (2014) *PLoS One* **9(8)**: e103592
Schäfer, M. O., *et al.*	Concurrent parasitism alters thermoregulation in honey bee (Hymenoptera: Apidae) winter clusters.	2011	Annals of the Entomological Society of America	Schäfer *et al.* (2011*) Annals Entomol. Soc. Am.* **104**:476-82
Schmehl, D. R., *et al.*	Genomic analysis of the interaction between pesticide exposure and nutrition in honey bees (*Apis mellifera*).	2014	Journal of Insect Physiology	Schmehl *et al.* (2014) *J. Insect. Physiol.* **71** :177-90
Schneider, C. W., *et al.*	RFID tracking of sublethal effects of two neonicotinoid insecticides on the foraging behavior of *Apis mellifera*.	2012	PLoS One	Schneider *et al.* (2012*) PLoS One* **7(1):**e30023
Schneider, S., *et al.*	Sublethal effects of oxalic acid on *Apis mellifera* (Hymenoptera: Apidae): Changes in behaviour and longevity.	2012	Apidologie	Schneider *et al.* (2012) *Apidologie* **43(2):**218-25
Sgolastra, F., *et al.*	Effects of neonicotinoid dust from maize seed-dressing on honey bees.	2012	Bulletin of Insectology	Sgolastra *et al.* (2012) *Bull. Insectol* **65 (2):** 273-80
Shafiq-ur-Rehman., *et al.*	Chlorpyrifos-induced neuro-oxidative damage in bee.	2012	Toxicology and Environmental Health Sciences	Shafiq-ur-Rehman *et al.* (2012) *Toxicol. Environ. Health Sci.* **4(1)**:30–6
Simeunovic, P., *et al.*	*Nosema ceranae* and queen age influence the reproduction and productivity of the honey bee colony.	2014	Journal of Apicultural Research	Simeunovic *et al.* (2014) *J. Apic. Res.* **53(5):**545-54
Simone-Finstrom, M., *et al.*	Impact of Food Availability, Pathogen Exposure, and Genetic Diversity on Thermoregulation in Honey Bees (*Apis mellifera*).	2014	Journal of Insect Behavior	Simone-Finstrom *et al.* (2014*) J. Insect Behav.* **27(4):**527–39
Simone-Finstrom, M., *et al.*	Migratory management and environmental conditions affect lifespan and oxidative stress in honey bees.	2016	Scientific Reports	Simone-Finstrom *et al.* (2016) *Sci. Rep.* **6**:32023
Singh, N. K., *et al.*	The effect of DEET on chemosensing of the honey bee and its parasite Varroa destructor.	2015	Apidologie	Singh *et al.* (2015) *Apidologie* **46(3)**:380–91
Škerl, M. I. S. and A. Gregorc	Heat shock proteins and cell death in situ localisation in hypopharyngeal glands of honeybee (*Apis mellifera* carnica) workers after imidacloprid or coumaphos treatment.	2010	Apidologie	Škerl *et al.* (2010) *Apidologie* **41(1):**73–86
Słowińska, M., *et al.*	Total antioxidant capacity of honeybee haemolymph in relation to age and exposure to pesticide, and comparison to antioxidant capacity of seminal plasma.	2016	Apidologie	Słowińska *et al.* (2016) *Apidologie* **47(2):**227–36
Smart, M. D., *et al.*	Land use in the Northern Great Plains region of the U.S. influences the survival and productivity of honey bee colonies.	2016	Agriculture, Ecosystems and Environment	Smart *et al.* (2016) *Agric. Ecosys. Enviro.*

				230:139-49
Soydan, E., *et al.*	Carbonic anhydrase from *Apis mellifera*: purification and inhibition by pesticides.	2017	Journal of enzyme inhibition and medicinal chemistry	Soydan *et al.* (2017) *J. Enzyme Inhib. Med. Chem.* **32(1**):47-50
Steijven, K., *et al.*	Testing dose-dependent effects of stacked Bt maize pollen on in vitro-reared honey bee larvae.	2016	Apidologie	Steijven *et al.* (2016) *Apidologie* **47(2):**216–26
Strachecka, A. J., *et al.*	Influence of environmental pollution on the protective proteolytic barrier of the honey bee *Apis mellifera* mellifera.	2010	Polish Journal of Environmental Studies	Strachecka *et al.* (2010) *Polish J. Environ. Stud.* **19(4)**:855-9
Strachecka, A. J., *et al.*	The influence of formic acid on the body surface proteolytic system at different developmental stages in *Apis mellifera* L. workers.	2012	Journal of Apicultural Research	Strachecka *et al.* (2012*) J. Apic. Res.* **51(3)** :252-62
Strachecka, A., *et al.*	Influence of amitraz and oxalic acid on the cuticle proteolytic system of *Apis mellifera* L. workers.	2012	Insects	Strachecka *et al.* (2012) *Insects* **3(3):**821-32
Strachecka, A., *et al.*	Varroa treatment with bromfenvinphos markedly suppresses honeybee biochemical defence levels.	2016	Entomologia Experimentalis et Applicata	Strachecka *et al.* (2016) *Entomol. Exp. Appl.* **160(1):**57–71
Stürup, M., *et al.*	When every sperm counts: Factors affecting male fertility in the honeybee *Apis mellifera*.	2013	Behavioral Ecology	Stürup *et al.* (2013) *Behav. Ecol.* **24(5):**1192–8
Switanek, M., *et al.*	Modelling seasonal effects of temperature and precipitation on honey bee winter mortality in a temperate climate.	2017	Science of the Total Environment	Switanek *et al.* (2017) *Sci. Total Environ.* **579**:1581-7
Szentgyörgyi, H., *et al.*	Influence of pollen deprivation on the fore wing asymmetry of honeybee workers and drones.	2016	Apidologie	Szentgyörgyi *et al.* (2016) *Apidologie* **47(5):**653–62
Tan, J., *et al.*	No impact of DvSnf7 RNA on honey bee (*Apis mellifera* L.) adults and larvae in dietary feeding tests.	2016	Environmental Toxicology and Chemistry	Tan *et al.* (2016) *Environ. Toxicol. Chem.* **35(2):**287-94
Tan, K., *et al.*	Wasp hawking induces endothermic heat production in guard bees.	2010	Journal of Insect Science	Tan *et al.* (2010) *J. Insect Sci.* **10**:142
Tananaki, C., *et al.*	Evaluation of the impact of Exomite Pro™ on Varroa mite (Varroa destructor) populations and honeybee (*Apis mellifera*) colonies: Efficacy, side effects and residues.	2014	Parasitology Research	Tananaki *et al.* (2014) *Parasitol. Res.* **113(4):**1251–9
Teeters, B. S., *et al.*	Using video-tracking to assess sublethal effects of pesticides on honey bees (*Apis mellifera* L.).	2012	Environmental Toxicology and Chemistry	Teeters *et al.* (2012*) Environ. Toxicol. Chem*. **31(6):**1349-54.
Thany, S. H., *et al.*	Similar comparative low and high doses of deltamethrin and acetamiprid differently impair the retrieval of the proboscis extension reflex in the forager honey bee (*Apis mellifera*).	2015	Insects	Thany *et al.* (2015) *Insects* **6(4):**805-14

Thompson, H. M., *et al.*	Evaluating exposure and potential effects on honeybee brood (*Apis mellifera*) development using glyphosate as an example.	2014	Integrated Environmental Assessment and Management	Thompson *et al.* (2014) *Integr. Environ. Assess. Manag.* **10(3):**463-70
Thompson, H. M., *et al.*	Potential impacts of synergism in honeybees (*Apis mellifera*) of exposure to neonicotinoids and sprayed fungicides in crops.	2014	Apidologie	Thompson *et al.* (2014) *Apidologie* **45(5)**:545-53
Tison, L., *et al.*	Honey Bees' Behavior is Impaired by Chronic Exposure to the Neonicotinoid Thiacloprid in the Field.	2016	Environmental Science and Technology	Tison *et al.* (2016) *Environ. Sci. Technol.* **50(13**):7218-27
Toomemaa, K., *et al.*	The effect of different concentrations of oxalic acid in aqueous and sucrose solution on Varroa mites and honey bees.	2010	Apidologie	Toomemaa *et al.* (2010) *Apidologie* **41(6)**:643-53
Toomemaa, K., *et al.*	Using oxalic acid in water solution in control of Varroa mites and its influence on honey bees.	2010	Agronomy Research	Toomemaa *et al.* (2010) *Agro. Res.***8(2):**345-50
Tremolada, P., *et al.*	Field trial for evaluating the effects on honeybees of corn sown using cruiser ® and celest xl ® treated seeds.	2010	Bulletin of Environmental Contamination and Toxicology	Tremolada *et al.* (2010) *Bull. Environ. Contam. Toxicol*. **85(3)**:229-34
Uçak Koç, A. and M. Karacaoğlu	Effects of queen rearing period on reproductive features of Italian (*Apis mellifera* ligustica), Caucasian (*Apis mellifera* caucasica), and Aegean ecotype of Anatolian honey bee (*Apis mellifera* anatoliaca) queens.	2011	Turkish Journal of Veterinary and Animal Sciences	Uçak Koç *et al.* (2011) *Turk. J. Vet. Anim. Sci.* **35(4):** 271-6
Underwood, R. M. and R. W. Currie	Indoor winter fumigation with formic acid does not have a long-term impact on honey bee (Hymenoptera: Apidae) queen performance.	2008	Journal of Apicultural Research	Underwood *et al.* (2008) *J. Apic. Res.* **47(2):**108-12
Van Der Zee, R., *et al.*	Results of international standardised beekeeper surveys of colony losses for winter 2012-2013: Analysis of winter loss rates and mixed effects modelling of risk factors for winter loss.	2014	Journal of Apicultural Research	Van Der Zee *et al.* (2014) *J. Apic. Res.* **53(1):**19-34
Van Dooremalen, C., *et al.*	Interactive effect of reduced pollen availability and Varroa destructor infestation limits growth and protein content of young honey bees.	2013	Journal of Insect Physiology	Van Dooremalen *et al.* (2013) *J. Insect. Physiol.* **59(4):**487-93
Vidau, C., *et al.*	Exposure to sublethal doses of fipronil and thiacloprid highly increases mortality of honeybees previously infected by *Nosema ceranae*.	2011	PLoS One	Vidau *et al.* (2011) *PLoS One* **6(6):**e21550
Vimla, G., *et al.*	Efficacy of essential oils against Varroa destructor infesting *Apis mellifera* Linn. colonies and their impact on brood development.	2014	Journal of Applied and Natural Science	Vimla *et al.* (2014) *J. Appl. Nat. Sci.* **6(1):**27-30
Vinothkumar, B., *et al.*	Toxicity of spirotetramat 150 OD to honeybees.	2010	Madras Agricultural Journal	Vinothkumar *et al.* (2010) *Madras Agric. J.* **97(1-3)**:86-7
Wegener, J., *et al.*	Secondary biomarkers of insecticide-induced stress of honey bee colonies and their relevance	2016	Ecotoxicology and	Wegener *et al.* (2016)

	for overwintering strength.		Environmental Safety	*Ecotoxicol. Environ. Saf.* **132**:379-89
Wessler, I., *et al.*	Honeybees produce millimolar concentrations of non-neuronal acetylcholine for breeding: Possible adverse effects of neonicotinoids.	2016	PLoS One	Wessler *et al.* (2016) *PLoS One* **11(6)**:e0156886
Wilde, J., *et al.*	The influence of sublethal doses of imidacloprid on protein content and proteolytic activity in honey bees (*Apis mellifera* L.).	2016	Journal of Apicultural Research	Wilde *et al.* (2016) *J. Apic. Res.* **55(2):**212-20
Wilkins, S., *et al.*	Effects of solvent on the toxicity of dimethoate in a honey bee in vitro larval study.	2013	Pest Management Science	Wilkins *et al.* (2013*) Pest Manag. Sci.* **69(4):**462-3
Willard, L. E., *et al.*	Food manipulation in honeybees induces physiological responses at the individual and colony level.	2011	Apidologie	Willard *et al.* (2011) *Apidologie* **42(4**):508–18
Williams, G. R., *et al.*	Effects at Nearctic north-temperate latitudes of indoor versus outdoor overwintering on the microsporidium *Nosema ceranae* and western honey bees (*Apis mellifera*).	2010	Journal of Invertebrate Pathology	Williams *et al.* (2010) *J. Invertebr. Pathol.* **104(1):**4-7
Williams, G. R., *et al.*	Neonicotinoid pesticides severely affect honey bee queens.	2015	Scientific Reports	Williams *et al.* (2015) *Sci. Rep.* **5**:14621
Williamson, S. M. and G. A. Wright	Exposure to multiple cholinergic pesticides impairs olfactory learning and memory in honeybees.	2013	Journal of Experimental Biology	Williamson *et al.* (2013) *J. Exp. Biol.* **216**: 1799-807
Williamson, S. M., *et al.*	Acute exposure to a sublethal dose of imidacloprid and coumaphos enhances olfactory learning and memory in the honeybee *Apis mellifera*.	2013	Invertebrate Neuroscience	Williamson *et al.* (2013) *Invert. Neurosci.* **13(1):**63-70
Williamson, S. M., *et al.*	Exposure to acetylcholinesterase inhibitors alters the physiology and motor function of honeybees.	2013	Frontiers in Physiology	Williamson *et al.* (2013) *Front. Physiol.* **4**:13
Williamson, S. M., *et al.*	Exposure to neonicotinoids influences the motor function of adult worker honeybees.	2014	Ecotoxicology	Williamson *et al.* (2014) *Ecotoxicolog.* **23(8):**1409-18
Wright, G. A., *et al.*	Low doses of neonicotinoid pesticides in food rewards impair short-term olfactory memory in foraging-age honeybees.	2015	Scientific Reports	Wright *et al.* (2015) *Sci. Rep.* **5:**15322
Wu, J. Y., *et al.*	Sub-lethal effects of pesticide residues in brood comb on worker honey bee (*Apis mellifera*) development and longevity.	2011	PLoS One	Wu *et al.* (2011) *PLoS One* **6(2):**e14720
Wu, Y. Y., *et al.*	Programmed Cell Death in the Honey Bee (*Apis mellifera*) (Hymenoptera: Apidae) Worker Brain Induced by Imidacloprid.	2015	Journal of Economic Entomology	Wu *et al.* (2015) *J. Econ. Entomol.* **108(4):**1486-94
Wu-Smart, J. and M. Spivak	Sub-lethal effects of dietary neonicotinoid insecticide exposure on honey bee queen fecundity and colony development.	2016	Scientific Reports	Wu-Smart *et al.* (2016*) Sci. Rep.* **6 :**32108
Xavier, V. M., *et al.*	Acute toxicity and sublethal effects of botanical insecticides to honey bees.	2015	Journal of Insect Science	Xavier *et al.* (2015) *J. Insect Sci.* **15(1)**:137

Yang, E. C., *et al.*	Abnormal foraging behavior induced by sublethal dosage of imidacloprid in the honey bee (Hymenoptera: Apidae).	2008	Journal of Economic Entomology	Yang *et al.* (2008) *J. Econ. Entomol.* **101(6):**1743-8
Yang, E., *et al.*	Impaired olfactory associative behavior of honeybee workers due to contamination of imidacloprid in the larval stage.	2012	PLoS One	Yang *et al.* (2012*) PLoS One* **7(11):**e49472
Yang, X. and D. Cox-Foster	Effects of parasitization by Varroa destructor on survivorship and physiological traits of *Apis mellifera* in correlation with viral incidence and microbial challenge.	2007	Parasitology	Yang *et al.* (2007) *Parasitology* **134(Pt 3)**:405-12
Yousef, S. I., *et al.*	Effect of Varroa infestation on the morphological and histological structure of the hypopharyngeal glands of *Apis mellifera* workers.	2014	The Journal of American Science	Yousef *et al.* (2014) *J. Am. Sci.* **10(12)**:69-78
Zhang, E. and J. C. Nieh	The neonicotinoid imidacloprid impairs honey bee aversive learning of simulated predation.	2015	Journal of Experimental Biology	Zhang *et al.* (2015) *J. Exp. Biol.* **218(Pt 20)**:3199-205
Zhu, W., *et al.*	Four common pesticides, their mixtures and a formulation solvent in the hive environment have high oral toxicity to honey bee larvae.	2014	PLoS One	Zhu *et al.* (2014) *PLoS One* **9(1):**e77547
Zhu, Y. C., *et al.*	Spray Toxicity and Risk Potential of 42 Commonly Used Formulations of Row Crop Pesticides to Adult Honey Bees (Hymenoptera: Apidae).	2015	Journal of Economic Entomology	Zhu *et al.* (2015*) J. Econ. Entomol.* **108(6)**:2640-7
Zoclanclounon, D. G., *et al.*	Toxicity to honey bees *Apis mellifera* adansonii of three insecticides used in cotton cultivation in Benin.	2016	Journal of Entomology	Zoclanclounon *et al.* (2016) *J. Entomol.* **13**: 161-9
Żółtowska, K., *et al.*	Effects of Varroa destructor on sugar levels and their respective carbohydrate hydrolase activities in honey bee drone prepupae.	2007	Journal of Apicultural Research	Żółtowska *et al.* (2007) *J. Api. Res.* **46(2)**:110–3

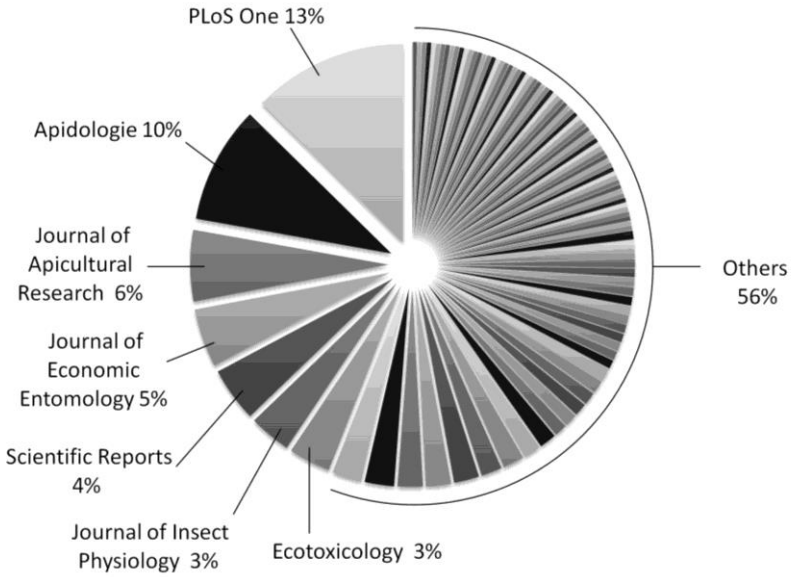

Figure S3: Percentage of articles related to the impact of stressors on *Apis mellifera* (n=293) included in the study and published in scientific journals between 2007 and 2017 (last access to database: March, 6th 2017).

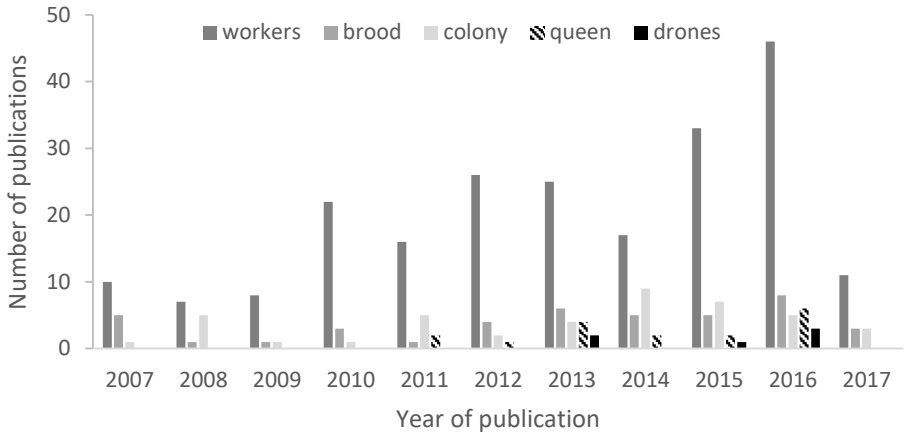

Figure S4: Number of publications (n=293) related to the impact of stressors on *Apis mellifera* published between 2007 and 2017 studying the different bee categories according to year of publication.

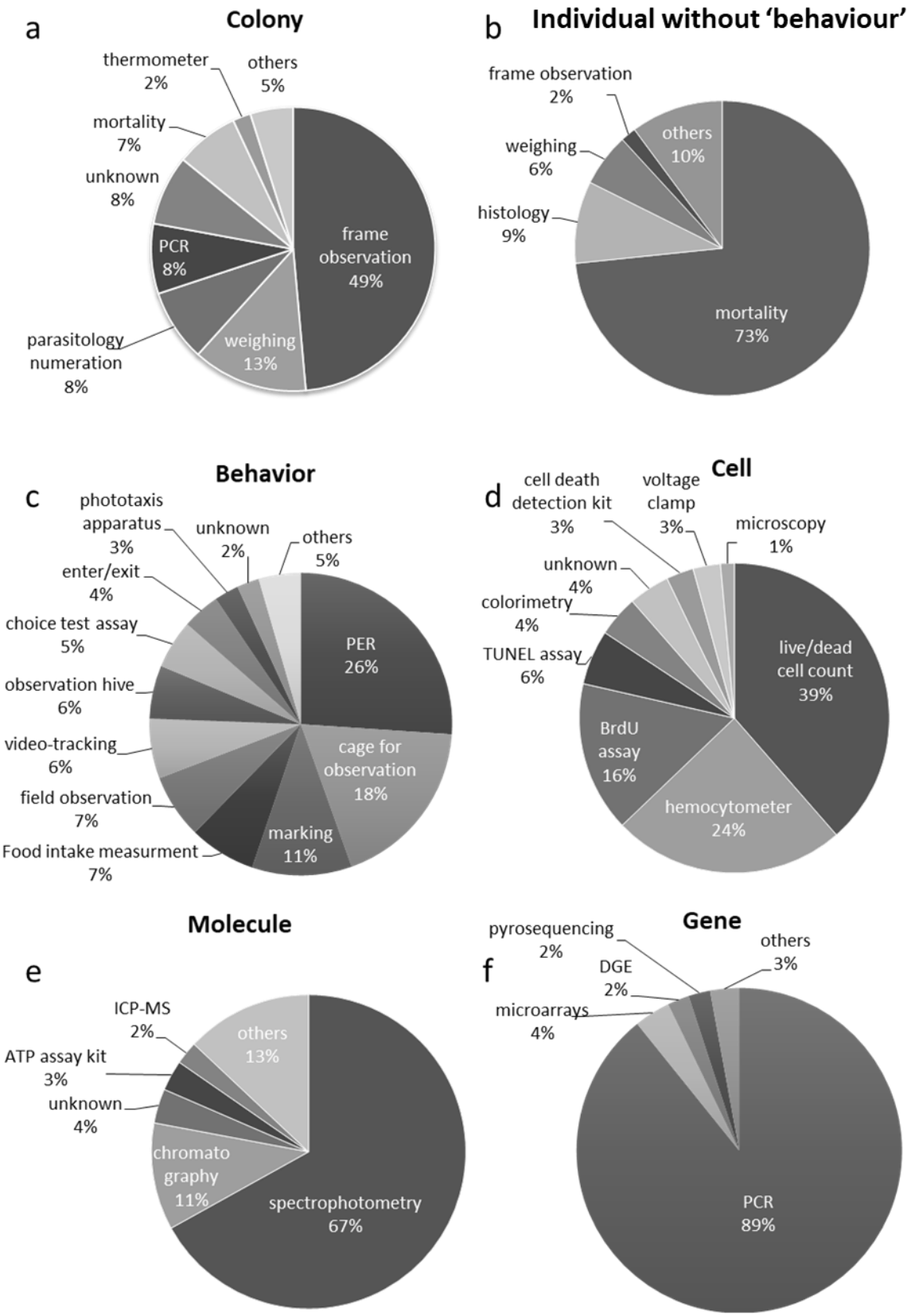

Figure S5: Proportion of the different methods used at the colony scale (a), at the individual scale in non-behavioral trials (b) and in behavioral trials (c), at the cellular (d), the molecular (e) and the genetic (f) scales. (« others »: set of methods, each representing 2% or less. See Table S2 for details).

Table S2: Detail of the "Others" sections of the figure 4

Figure number	"Others"
Fig. 4a « Biotic Stressors »	Fungus mycotoxins (Aflatoxin B1 et Ochratoxin A) Queen pheromones Mating injuries
Fig. 4b « Abiotic Stressors »	Brood temperature Donezepil Environmental pollution Selenium Age Genetic lineage Pheromone traps : - Checkmate (microencapsulated LBAM pheromones) - LBAM pheromones Plant extracts : - Colchicine - Nicotine Polychlorobiphenyles (Aroclor)
Fig. 4d « Insecticides »	Avermectines Benshydrazides Benzoylureas Juvenile hormone analogues Ketoneoles Organochlorates Pyridines Pyrroles Thiocarbamates Toxines Triazines Pyridazinones