

**Antibiotic residues in farm fertilizers from conventional pig husbandry**

**– A challenge for fate monitoring at farm and laboratory scale –**

Von der Fakultät für Lebenswissenschaften  
der Technischen Universität Carolo-Wilhelmina  
zu Braunschweig

zur Erlangung des Grades  
einer Doktorin der Naturwissenschaften

(Dr. rer. nat.)

genehmigte

**D i s s e r t a t i o n**

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eingereicht am:	29.06.2016
mündliche Prüfung (Disputation) am:	28.10.2016

Druckjahr 2017

Dissertation an der Technischen Universität Braunschweig,  
Fakultät für Lebenswissenschaften

Berichte aus der Chemie

**Arum Widyasari-Mehta**

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Shaker Verlag  
Aachen 2017

**Bibliographic information published by the Deutsche Nationalbibliothek**

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

Zugl.: Braunschweig, Techn. Univ., Diss., 2016

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Printed in Germany.

ISBN 978-3-8440-5079-0

ISSN 0945-070X

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen

Phone: 0049/2407/9596-0 • Telefax: 0049/2407/9596-9

Internet: [www.shaker.de](http://www.shaker.de) • e-mail: [info@shaker.de](mailto:info@shaker.de)

## **Vorveröffentlichungen der Dissertation**

Teilergebnisse aus dieser Arbeit wurden mit Genehmigung der Fakultät für Lebenswissenschaften, vertreten durch den Mentor der Arbeit, in folgenden Beiträgen vorab veröffentlicht:

### **Publikationen:**

Widyasari-Mehta, A., Hartung, S., Kreuzig, R., 2016. From the application of antibiotics to antibiotic residues in liquid manures and digestates: A screening study in one European center of conventional pig husbandry. *J. Environ. Manage.* 177, 129–137.

Widyasari-Mehta, A., Suwito, H.R.K.A., Kreuzig, R., 2016. Laboratory testing on the removal of the veterinary antibiotic doxycycline during long-term liquid pig manure and digestate storage. *Chemosphere* 149, 154–160.

Wolters, B., Widyasari-Mehta, A., Kreuzig, R., Smalla, K., 2016. Contaminations of organic fertilizers with antibiotic residues, resistance genes, and mobile genetic elements mirroring antibiotic use in livestock? *Appl. Microbiol. Biot.* 100, 9343–9353.

### **Poster:**

Wolters, B., Hartung, S., Widyasari, A., Fornefeld, E., Kreuzig, R., Smalla, K., 2013. Detection of antibiotic resistance genes in manures from different pig producing systems and fermentation residues from biogas plants. Jahrestagung der Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM) zusammen mit der Koninklijke Nederlandse Vereniging voor Microbiologie (KNVM), Bremen, Germany.

Wolters, B., Hartung, S., Widyasari, A., Fornefeld, E., Kreuzig, R., Smalla, K., 2013. Detection of antibiotic resistance genes and mobile genetic elements in fermentation residues from biogas plants and manures from different pig producing systems. 1<sup>st</sup> Symposium on Bacterial Genetics and Ecology (BAGECO 12), Ljubljana, Slovenia.

Wolters, B., Hartung, S., Widyasari, A., Kreuzig, R., Smalla, K., 2013. Detection of antibiotic resistance genes and mobile genetic elements in piggery manures and fermentation residues from biogas plants. Sechstes Nachwuchswissenschaftlerforum (NWF) des Julius Kühn-Instituts - 6<sup>th</sup> Young Scientists Meeting, Quedlinburg, Germany.

Wolters, B., Widyasari, A., Hartung, S., Kreuzig, R., Smalla, K., 2015. Do organic fertilizers enhance resistance genes and mobile genetic elements in field soils? 3<sup>rd</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR 3), Wernigerode, Germany.

Wolters, B., Behrens, I.-K., Widyasari, A., Hartung, S., Kreuzig, R., Smalla, K., 2015. Organic fertilizers as a source of resistance genes and mobile genetic elements and their potential contribution to the spread of resistance genes in field soils. 13<sup>th</sup> Symposium on Bacterial Genetics and Ecology (BAGECO 13), Milan, Italy.

*“Never regard study as a duty, but as the enviable opportunity to learn”.*

*Albert Einstein*





## Acknowledgments

This study was performed at the Institute of Environmental and Sustainable Chemistry, Technische Universität Braunschweig, Germany, within the research project "Antibiotics in liquid pig manures: Developing strategies for manure treatment technologies for the simultaneous reduction of manure contamination with antibiotic residues and resistance genes" (FKZ2810HS032) from November 2011 until July 2014 funded by the German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) through the German Federal Office for Agriculture and Food (BLE), Germany, and the follow-up BLE-project "Antibiotics in liquid pig manures: Investigations on the path manure – soil – plant" (FKZ2814HS001) from April 2014 until November 2015.

First and foremost, my deepest gratitude is expressed to apl. Prof. Dr. Robert Kreuzig from the Institute of Environmental and Sustainable Chemistry, Technische Universität Braunschweig, as my principal supervisor, without whom the whole research project, as well as the corresponding research articles and this Ph.D. thesis, would not have been successfully realized. His knowledge and passion for this scientific research have constantly inspired me to always think creatively and be self-critical in order to be able to identify and solve the analytical problems.

I am truly grateful to Prof. Dr. Peter Winterhalter from the Institute of Food Chemistry, Technische Universität Braunschweig, for his kind interest in this work and his valuable time to read and evaluate this Ph.D. thesis.

I also express my warm thanks to Prof. Dr. Gerd Hamscher as the external examiner from the Institute of Food Chemistry and Food Biotechnology, Justus-Liebig-Universität Giessen.

My sincere thanks go to Prof. Dr. rer. nat. habil. Uwe Schröder as the Director of Institute of Environmental and Sustainable Chemistry, Technische Universität Braunschweig, for his support throughout my employment period in the institute and his interest in my work and for accepting to be the committee members of the Ph.D. examination.

I would like to thank Prof. Dr. Kornelia Smalla from Julius Kühn-Institut, Federal Research Centre for Cultivated Plants, Institute for Epidemiology and Pathogen Diagnostics,

Braunschweig, Germany, for her kind cooperation within the above-mentioned research projects as well as for her valuable ideas and contributions to this work.

I greatly acknowledge the support of the Agricultural Chamber of Lower Saxony in Oldenburg and Braunschweig, Germany, represented by Dr. Günter Steffens, Tim Eilers, Dr. Andreas Freitag and Dr. Karsten Lacü, as well as the 25 farmers from Lower Saxony, Germany, for their substantial contributions to the projects.

It has been a memorable experience to be a member of the Institute of Environmental and Sustainable Chemistry, Technische Universität Braunschweig, and to be able to directly learn from the extraordinary lecturers. In this regard, I sincerely thank Prof. Dr. mult. Dr. h.c. Müfit Bahadır, Dr. Marit Kolb and Dr. rer. nat. Hubertus Wichmann for their valuable lessons, advice and support throughout my study period.

Many thanks especially to Susen Hartung, M.Sc. and Dipl. Biol. Birgit Wolters, for their hard work and excellent cooperation managing these research projects. I am thankful for the assistance and support of the permanent staff, scientific co-workers, Master students and technical assistants of the Institute of Environmental and Sustainable Chemistry, Technische Universität Braunschweig, who participated in the projects. Also, thank you to the other Ph.D. fellows and colleagues of this institute for sharing their scientific knowledge and providing a great working environment.

Last but not least, my special and heartily thanks go to my husband Vivek Mehta, M.Sc. and my family in Indonesia, for their prayers, support and irreplaceable help during the completion of this study.

*To*

*my parents, Hari Martopo and Fransiska Dwi Sukatiningsih,  
and my beloved husband, Vivek Mehta,*

*for their endless love, support and encouragement.*



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**Abbreviations**

AAc	Ammonium acetate
ACN	Acetonitrile
APCI	Atmospheric pressure chemical ionization
BGP	Pig farm with biogas plant
BLE	Federal Office for Agriculture and Food
BMEL	Federal Ministry of Food and Agriculture
BMELV	Federal Ministry of Food, Agriculture and Consumer Protection
BVL	Federal Office of Consumer Protection and Food Safety
CE	Collision energy
CEM	Channel electron multiplier
CID	Collision induced dissociation
CUR	Curtain gas
CXP	Cell exit potential
Da	Dalton
DAD	Diode array detector
DNA	Deoxyribonucleic acid
DP	Declustering potential
DW	Dry weight
EC	European Commission
EDTA	Ethylenediaminetetraacetic acid
E <sub>h</sub>	Redox potential
EMA	European Agency for the Evaluation of Medicinal Products
epi	Epimer
ER	Extractable residue
ESI	Electrospray ionization
EtAc	Ethyl acetate
EU	European Union
FIA	Flow injection analysis
FW	Fresh weight
GC-MS	Gas chromatography-mass spectrometry
GC-TCD	Gas chromatography-thermal conductivity detector
GS1	Nebulizing gas
GS2	Desolvation gas
H <sub>c</sub>	Henry's law constant
HCOOH	Formic acid
HLB	Hydrophilic-lipophilic balance

## Abbreviations

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HPLC	High performance liquid chromatography
HTC	Hydrothermal carbonization
ID	Inner diameter
IDL	Instrument detection limit
IS	Ion spray voltage
$K_d$	Soil-water partition coefficient
LC-MS/MS	Liquid chromatography tandem mass spectrometry
LLE	Liquid-liquid extraction
LLP	Liquid-liquid partition
LWK	Agricultural chamber
m/z	Mass-to-charge ratio
MAE	Microwave assisted extraction
MeOH	Methanol
MIN	Mineralization
MIX	Mixture
MQL	Method quantitation limit
MRM	Multiple reaction monitoring
MS	Mass spectrometer
MW	Molecular weight
NER	Non-extractable residue
NMELV	Lower Saxony Ministry of Food, Agriculture and Consumer protection
oDW	Organic dry weight
PBF	Pig breeding farm
PFF	Pig fattening farm
$pK_a$	Acid dissociation constant
PLE	Pressurized liquid extraction
PPD	Postpartum dysgalactia
Q	Quadrupole
QqQ	Triple stage quadrupole
QUAL	Qualifier ion
QUAN	Quantifier ion
RNA	Ribonucleic acid
RP-HPLC	Reversed-phase high performance liquid chromatography
RSD	Relative standard deviation
SAX	Strong anion exchange
SDB	Styrene-divinylbenzene
SLE	Solid-liquid extraction
SPE	Solid phase extraction

TEM	Ion source temperature
TFA	Trifluoroacetic acid
UPLC	Ultra performance liquid chromatography
UV-Vis	Ultraviolet-Visible
XIC	Extracted ion chromatogram