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**Studies about mechanisms of oil seed
deterioration under different storage
conditions in oilseed rape (*Brassica napus* L.)**

Cuvillier Verlag Göttingen

Studies about mechanisms of oil seed deterioration under
different storage conditions in oilseed rape (*Brassica napus* L.)

Dissertation
to obtain the Ph. D. degree
in the Faculty of Agricultural Sciences,
Georg-August-University Göttingen, Germany

Presented by

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born in ChiangMai

Göttingen, July 2007

Bibliografische Information Der Deutschen Bibliothek

Die Deutsche Bibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.ddb.de> abrufbar.

1. Aufl. - Göttingen : Cuvillier, 2007
Zugl.: Göttingen, Univ., Diss., 2007

978-3-86727-316-9

D 7

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Date of dissertation: 19 July 2007

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1. Auflage, 2007
Gedruckt auf säurefreiem Papier

978-3-86727-316-9

ACKNOWLEDGMENT

This dissertation is not possible without the personal and practical support of numerous people. I would like to express my deep and sincere gratitude to my supervisor, Prof. Dr. Elke Pawelzik, Head of the Section Quality of Plant Products, for her kind patience, enthusiasm and scientific guidance for this study. Above all and the most needed, she provided encouragement and supports in various ways. Her wide knowledge and her logical ways of thinking have been of great value for me. I am deeply grateful to Prof. Dr. W. Lücke, Head of the Section Agricultural engineering, for his willingness to be co-referee and examiner, and for his constructive comments. I wish to express my warm and sincere thanks to Prof. Dr. Dr. h. c. U. ter Meulen who gave me the first steps to this university studies and his willingness to be the third examiner. I warmly thank Dr. A. Keutgen, for her valuable and friendly help. Her guidance in analytical analysis and her interest during the investigation have been very helpful for this study.

Further more, I want to say honorable thanks to Norddeutsche Pflanzenzucht (Holtsee, Germany) for providing oilseed rape materials for my experiments. My investigation for this dissertation was made more efficient but also much more extensive through the use of several scientific techniques and instruments. Thus I express my gratitude to my colleagues at the Institute of Agricultural Chemistry (Section Quality of Plant Products), Mrs. B. Egger., Mrs. G. Jansen, Mr. M. Hanke, Mrs. C. Conradt, Mr. R. Hillmer and Mr. J. Kobbe for their kind assistance and helps. I would like to express my gratefulness to the Section of Plant breeding for fatty acids and tocopherols analysis. I would also like to acknowledge and thanks to the staff of the Section Institute of Agricultural Engineering for their supports.

I wish to express my warmest thanks also to all of my colleagues for their patience and understanding through the difficult times of my academic challenges. My particular thanks also go to Dr. M. Shariff and Dr. Debasmita Samal for their willing to read and revise some portions of this dissertation.

I wish to thank Prof. Dr. Suchada and Prof. Dr. Therdchai Vearasilp, for inspiring and encouraging me to pursue a graduate studies.

The financial support of Thai government in cooperation with ChiangMai Univesity carried out by Office of the Civil Service Commission is also gratefully knowledge.

I wish to extend my warmest thanks to my Thai friends in Germany for their emotional support and valuable advises.

My special gratitude is for my sister and her family for their loving support. At last, and importantly, I owe my loving thanks to my parents who encourage and support through my life time.

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ABBREVIATIONS

AAT	- accelerated aging test
acetyl-CoA	- acetyl Co-enzyme A
AOS	- active oxygen species
APX	- ascorbate peroxidase
BHT	- butylated hydroxytoluene
CAT	- catalase
CT	- cold test
cv.	- cultivar
DM	- dry matter
EDTA	- ethylene diamine tetraacetic acid
ERH	- equilibrium relative humidity
FFA	- free fatty acids
GR	- glutathione reductase
HPLC	- high performance liquid chromatography
LOX	- lipoxygenase
LSD	- least significant difference
MC	- moisture content
MDA	- malondialdehyde
PA	- polyamide
PE	- polyethylene
POD	- peroxidase
ROS	- reactive oxygen species
RP- HPLC	- reversed-phase high-performance liquid chromatography
SGT	- standard germination test
SOD	- superoxide dismutase
ST	- soil test
TAGs	- triacylglycerols
TBA	- thiobarbituric acid
TCA	- trichloroacetic acid

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1 INTRODUCTION

Brassica napus L. (rapeseed, oilseed rape or canola), an ancient crop plant, belongs to the Cruciferaeae (Brassicaceae) family, also known as the mustard family. Typical oil content of rapeseed ranges from 35-48% DM (NACMA, 1997). Nowadays, it is the third most important source of vegetable oil in the world. Winter rapeseed is a cool-season annual and important oilseed crop which grows in the temperate agriculture zone. In Europe, the total cultivated area covers 7,100,000 ha and the major crop grown is rapeseed with about 4,800,000 ha, the biggest cultivated area of which is in Germany (1,350,000 ha) (Ollier, 2006). The crop is not only used in the food and feed industry, but it also provides a lubricant and a petroleum substitute in bio-diesel. During the 20th century, demand for oilseed rape grew significantly in the developed world (Walker and Booth, 2001). The European harvest in 2005 amounted to 15,500,000 tons, having increased by 1% of the harvest in year 2004 and by more than 28% of the average harvest of the past 5 years (2001 to 2005) (Ollier, 2006).

Since rapeseed is a crop that prefers a cooler climate, the date of sowing will vary according to latitude and date of onset of winter. For example, in Northern Europe optimum sowing date is generally in the latter half of August until the early part of September. Ideally, seeds should be sown into a fine, firm, moist and well-structured seed-bed to encourage rapid and uniform germination and establishment (Almond et al., 1984). Moreover, crop establishment is an important factor to get optimal plant population. Thus, for the highest yield, it is not only the planting time but also the seed rate which affects the plant height, its shape with lodging effect and weed competition (Walker and Booth, 2001). However, the use of rapeseed of low quality leads to a rather poor plant population in the field. In addition, high seed quality plays an important role for production because good seeds contain many components and ultimately achieve final stand of plant. Basra (1995) indicated that high quality seed characterized by having specifically and genetically pure genotype. It should be free from disease, vigorous and high in germination percentage. Thus, the regulation of rapeseed quality is to be recognized as high seed viability and vigour because it supports the rapid germination and fast growth and able to withstand environmental adversity.