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THE CHEMICAL CONSTITUENTS OF LIPIDS
FROM FILTER CAKE AND SUGAR CANE RIND

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วิทยะดา ล่าลีฉั้น : องค์ประกอบทางเคมีของลิพิดจากกากตะกอนกรองและผิวอ้อย (THE CHEMICAL CONSTITUENTS OF LIPIDS FROM FILTER CAKE AND SUGAR CANE RIND)
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ลิพิดซึ่งสกัดจากกากตะกอนกรองของโรงงานน้ำตาล 4 แห่งด้วยเฮกเซน มีปริมาณ 5.3-17.8% สามารถแยกสารได้ 5 ชนิดจากลิพิดนี้ได้แก่ ของผสมของไฮโดรคาร์บอนโซ่ตรง ($C_{24}-C_{35}$), ของผสมของอัลดีไฮด์โซ่ตรง ($C_{22}-C_{34}$), ของผสมของสเตอรอยด์ (campesterol, β -sitosterol และ stigmasterol), ของผสมของแอลกอฮอล์โซ่ตรง ($C_{26}-C_{35}$) และของผสมของกรดคาร์บอกซิลิกโซ่ตรง ($C_{24}-C_{34}$) โดยมีของผสมของแอลกอฮอล์เป็นองค์ประกอบหลัก โดยเฉพาะอย่างยิ่ง triacontanol ($C_{30}H_{61}OH$)

ผลการเปรียบเทียบองค์ประกอบทางเคมีของผิวอ้อย 3 พันธุ์ (F147, F153 และ Q83) พบว่า ปริมาณลิพิดของพันธุ์ F153 มีมากเกือบ 2 เท่าของปริมาณลิพิดของพันธุ์ F147 และ Q83 จากลิพิดของผิวอ้อยได้ทำการแยก kojic acid, ของผสมของไฮโดรคาร์บอนโซ่ตรง ($C_{25}-C_{35}$), ของผสมของกรดโซ่ตรง ($C_{22}-C_{34}$), ของผสมของอัลดีไฮด์โซ่ตรง ($C_{23}-C_{34}$), ของผสมของแอลกอฮอล์โซ่ตรง ($C_{25}-C_{35}$) และสเตอรอยด์ ของผสมของแอลกอฮอล์โซ่ตรง โดยเฉพาะ triacontanol เป็นองค์ประกอบหลัก และมีของผสมของอัลดีไฮด์โซ่ตรงเป็นสารซึ่งมีปริมาณรองลงมาในอ้อยพันธุ์ F153 และ Q83 ในขณะที่ของผสมของกรดโซ่ตรงเป็นสารซึ่งมีปริมาณรองลงมาในอ้อยพันธุ์ F147 ในอ้อยทั้ง 3 พันธุ์มีปริมาณของไฮโดรคาร์บอนและสเตอรอยด์เล็กน้อย

ได้รายงานผลการวิเคราะห์เปรียบเทียบสารที่แยกได้แต่ละชนิดในกากตะกอนกรอง โรงงานต่าง ๆ และผิวอ้อยพันธุ์ต่าง ๆ พร้อมทั้งเสนอการใช้ประโยชน์ของสารที่แยกได้

ภาควิชาเคมี
สาขาวิชาเคมีอินทรีย์
ปีการศึกษา2532

ลายมือชื่อนิสิต
ลายมือชื่ออาจารย์ที่ปรึกษา
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

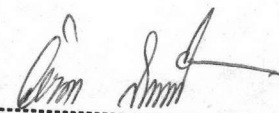
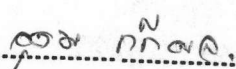
VIYADA SALEECHAN : THE CHEMICAL CONSTITUENTS OF LIPIDS FROM FILTER
CAKE AND SUGAR CANE RIND. THESIS ADVISOR : ASSO. PROF. UDOM KOKPOL,
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The crude lipids extracted from filter cakes of 4 refined sugar
factories by n-hexane were 5.3-17.8%. There were 5 substances isolated from
the lipids, a mixture of long chain aliphatic hydrocarbons (C₂₄-C₃₅), a
mixture of long chain aliphatic aldehydes (C₂₂-C₃₄), a mixture of steroids
(campesterol, β -sitosterol, stigmasterol), a mixture of long chain aliphatic
alcohols (C₂₆-C₃₅), and a mixture of long chain aliphatic carboxylic acids
(C₂₄-C₃₄). The mixture of long chain alcohols was the major composition,
especially triacontanol (C₃₀H₆₁OH).

The comparative chemical constituents of 3 varieties of sugar cane
rinds (F147, F153 and Q83) showed that the lipid content of F153 variety was
nearly two times more than the lipid content of both F147 and Q83 varieties.
Kojic acid, a mixture of long chain hydrocarbons (C₂₅-C₃₅), a mixture of long
chain acids (C₂₂-C₃₄), a mixture of long chain aldehydes (C₂₃-C₃₄), a mixture
of long chain alcohols (C₂₅-C₃₅) and steroids (unidentified) were isolated
from the lipids. The mixture of long chain alcohols, especially triacontanol,
was the major substance of all 3 varieties and the second major isolated
substance was the mixture of long chain aldehydes in the F153 and Q83 varieties
while the mixture of long chain acids was the second major substance in F147
variety. All 3 varieties contained small amount of hydrocarbons and trace of
steroids.

The comparative analytical data of each isolated substances from
various filter cakes and sugar cane rinds were reported and the utilization of
them were discussed.

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สาขาวิชา เคมีอินทรีย์
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ลายมือชื่อนิสิต 
ลายมือชื่ออาจารย์ที่ปรึกษา 
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

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LIST OF ABBREVIATION

b	broad
°C	degree Celsius
Cpd.	compound
cm ⁻¹	unit of wavenumber
d	doublet (NMR)
dd	double doublet (NMR)
DMSO	dimethyl sulfoxide
2,4-DNP	2,4-dinitrophenylhydrazine
g	gram (s)
GC	gas chromatography
m	multiplet (NMR)
m/e	mass to charge ratio
mL.	milliliter (s)
m.p.	melting point
MW	molecular weight
M ⁺	molecular ion in mass spectrum
nm	nanometer
ppm.	part per million
Rf	rate of flow in chromatography
s	singlet (NMR) or sharp (IR)
std.	standard
sub.	substance
wt	weight