

International Conference of
Herbal Medicine Industrialization
as Complementary Therapy
in Natural Disasters

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HMIND 2015
HERBAL MEDICINE INDUSTRIALIZATION
AS COMPLEMENTARY THERAPY
IN NATURAL DISASTERS



UNIVERSITÄT
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ANALGESIC EFFECT OF Bryophyllum Pinnatum L AND Curcuma Xanthorrhiza COMBINATION ON RAT'S INDUCED BY FORMALIN AS ARTHRALGIA AGENT

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Background: Arthralgia is pain in arthritis. Its prevalence is widespread and increasing every year and greatly affect quality of life. Bryophyllum pinnatum L leaves and Curcuma xanthorrhiza rhizomes potentially as antioxidant, analgesic and anti-inflammatory.

Objective : to understand Analgesic Effect of Bryophyllum pinnatum L and Curcuma

xanthorrhiza combination on Rat's induced by Formalin as Arthralgia Agent
Method: In this study we examined the analgetic effects of both ethanolic Bryophyllum pinnatum L leaves and Curcuma xanthorrhiza rhizomes extract's combination on the analgetic score using formalin induced. Male wistar rats were divided into 7 groups (n=7), consists of control group (aquadest), aspirin group at a dose of 100mg/mL, ethanolic extract group with various doses (5 dose combination at 200mg/kg BB, p.o). Each group was induced by 0,05 ml Formalin (2,5%) on day. Early phase nociceptive responses were measured in the first 5 minutes and late phase was measured at 15-30 minutes after formalin induced. The analgetic score were determined on early phase and late phase, and then analyzed using ANOVA test.

Outcome Measured :-

Result: The results showed that the combination of Bryophyllum pinnatum L leaves and Curcuma xanthorrhiza rhizomes extract have analgesic activity in male rat's were induced by formalin. Dose combination of Bryophyllum pinnatum L leaves and Curcuma xanthorrhiza rhizomes with a dose of 100:0 significantly reduced analgetic score.

Conclusion: The results suggest that Bryophyllum pinnatum L leaves extract had analgetic activities that should be further examined and potentially candidate as exploited for arthralgia therapies.

Keywords: arthralgia, analgetic, Bryophyllum pinnatum L leave, Curcuma xanthorrhiza rhizomes, early phase, late phase

DEVELOPED TLC-DENSITOMETRIC FINGERPRINT VALIDATION IN PROPOSED HERBAL MEDICINE STANDARDIZATION

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Background : Chromatographic Fingerprint is utilized for the authenticity and quality control of the herbal medicines. TLC densitometric is common used as the first line analytical tool for those propose. The similarity of the fingerprints represents the phytoequivalence and ensures their reliability and repeatability of efficacy between bath productions. The chemometric computation software is able to compare and compute all the chromatographic peaks, to determine the overall degree of similarity. The TLC numerical peak parameters (TLC-NPP) are influenced by many factors. Good chromatographic fingerprint obtain the reproducible TLC-NPP of every peak, which possible to collect it's into the same manner of database. The valid database will be used by the chemometric software to count the similarity-level between measured and e-library fingerprint database in order to identify and standardize the contained biomarker substances.

Objective: The objective of this study was to find out the influenced chromatographic TLC parameter variations on the chemometric of TLC fingerprint similarity factor and develop the validation method for TLC fingerprint method.

Methods: The herbal medicines were extracted with methanol and spotted on TLC plates in a manner volume variation for intra and inter day precision. The Plates were scanned under 210 nm. The TLC-NPP was collected and arranged, the similarity of chromatograms was obtained through multi-variance PCA and HCA analyses.

Outcome measured : Digitale desitometric TLC-NPP

Results : The similarity level influenced by the TLC-NPP data collected and arranged. The longer TLC-NPP data's array presented better discrimination analysis. The Rf-values variation was the highest TLC-NPP influenced factors for the similarities levels. The arranged TLC-NPP based on the same biomarker peaks possible to reduce the Rf-variation and introduced better %RSD and similarity values. The %RSD -values (<2%) of intraday precision obtained the similarity more than 99.9% and of interday precision (<10%) more than 99.0%.

Conclusion: The %RSD of each fingerprint peaks correlated to the similarity HCA-PCA levels. The lowest of %RSD-values on intra and inter day precision produced better similarity values.

Keywords: TLC-fingerprint, herbal medicine standardization, validation



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This letter certifies that:

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No. SK: 110/SK-SKP/PP.IA/II/2015

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Yogyakarta, 7th January 2015



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DEVELOPED TLC- DENSITOMETRIC FINGERPRINT VALIDATION IN PROPOSED HERBAL MEDICINE STANDARDIZATION

by Gelgel Wirasuta

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TIME SUBMITTED	06-JAN-2017 06:03AM	WORD COUNT	398
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DEVELOPED TLC-DENSITOMETRIC FINGERPRINT VALIDATION IN PROPOSED HERBAL MEDICINE STANDARDIZATION

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Background :

Chromatographic Fingerprint is utilized for the authenticity and quality control of the herbal medicines. TLC densitometric is commonly used as the first line analytical tool for those purposes. The similarity of the fingerprints represents the phytoequivalence and ensures their reliability and repeatability of efficacy between both productions. The chemometric computation software is able to compare and compute all the chromatographic peaks, to determine the overall degree of similarity. The TLC numerical peak parameters (TLC-NPP) are influenced by many factors. Good chromatographic fingerprint obtains the reproducible TLC-NPP of every peak, which is possible to collect it into the same manner of database. The valid database will be used by the chemometric software to count the similarity-level between measured and e-library fingerprint database in order to identify and standardize the contained biomarker substances.

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The objective of this study was to find out the influenced chromatographic TLC parameter variations on the chemometric of TLC fingerprint similarity factor and develop the validation method for TLC fingerprint method.

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Outcome measured :

Digital densitometric TLC-NPP

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The similarity level influenced by the TLC-NPP data collected and arranged. The longer TLC-NPP data's array presented better discrimination analysis. The R_f-value variation was the highest

TLC-NPP influenced factors for the similarities levels. The arranged TLC-NPP based on the same biomarker peaks possible to reduce the Rf-variation and introduced better %RSD and similarity values. The %RSD –values (<2%) of intraday precision obtained the similarity more than 99.9 % and of interday precision (<10%) more than 99.0%.

Conclusion:

The %RSD of each fingerprint peaks correlated to the similarity HCA-PCA levels. The lowest of %RSD-values on intra and inter day precision produced better similarity values.

Keywords: TLC-fingerprint, herbal medicine standardization, validation

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DEVELOPED TLC-DENSITOMETRIC FINGERPRINT VALIDATION IN PROPOSED HERBAL MEDICINE STANDARDIZATION

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PUBLICATIONS

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STUDENT PAPERS

PRIMARY SOURCES

1

Cai, . "General Introduction", High Performance Liquid Chromatography Fingerprinting Technology Of The Commonly-Used Traditional Chinese Medicine Herbs, 2012.

Publication

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2

Husein, Alwi, Bagus Jaya Santosa, and Ayi Syaeful Bahri. "Seepage Monitoring of an Embankment Dam Using Resistivity Method: A Case Study of LUSI Mud Volcano P.79 - P.82 Embankment", Applied Mechanics and Materials, 2015.

Publication

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DEVELOPED TLC-DENSITOMETRIC FINGERPRINT VALIDATION IN PROPOSED HERBAL MEDICINE STANDARDIZATION

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Introduction

Chromatographic Fingerprint

- *Phytoequivalence and chromatographic fingerprints of herbal medicines*
- *Information contents of fingerprints of herbal medicines*
- *Correction of retention time shift of fingerprints of herbal medicines*

Outline

- Introduction
- Aim of Study
- Material and Method
- Result and Discussion
- Conclusion

Aim of The Study

- **The objective of this study was**
 - **to find out the influenced chromatographic TLC parameter variations on the chemometric of TLC fingerprint similarity factor and**
 - **develop the validation method for TLC fingerprint method**

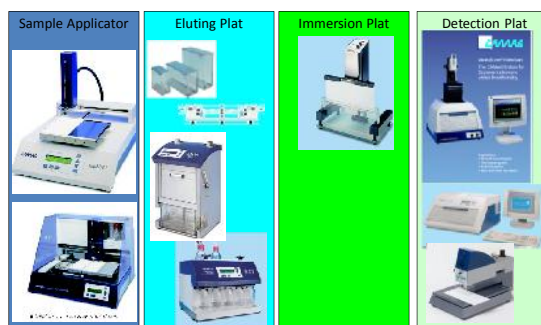
Introduction

Herbal Medicines

Multi Compound
Pharmacological effect: result of the all compounds

Standardization Method to ensure:
qualitas, efficacy, safety, dan reproduibilitas of raw material dan end product

Material and Method

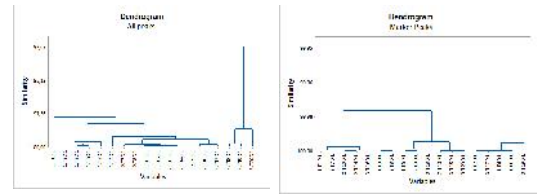


Material and Method



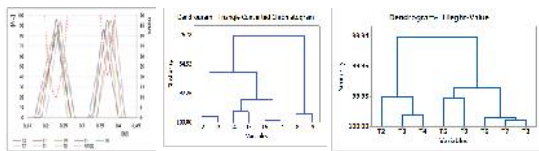
Result and Discussion

Peaks selection



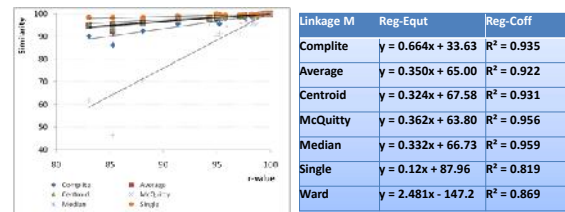
Result and Discussion

Influence Chromatographic shifting



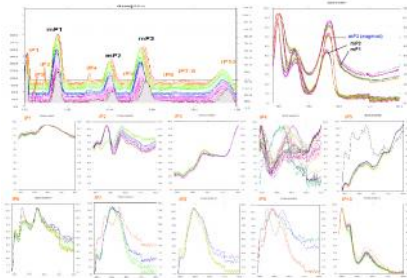
Result and Discussion

Similarity vs Linkage Methods



Result and Discussion

Chromatogram of Piper Bettle L



Result and Discussion

Similarity vs % RSD IntraDay-Precision

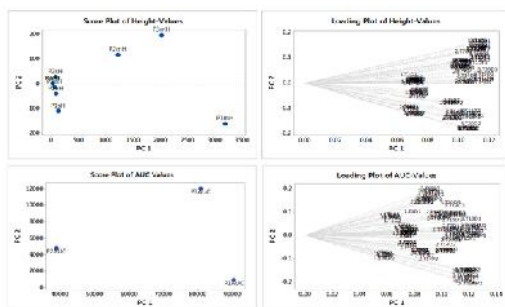
	mH-Value	Area-Value	mH-Value	Area-Value	mH-Value	Area-Value
%RSD(P1mH)	0.35 - 1.68	0.59 - 1.95	0.36 - 1.73	0.86 - 2.78	2.26	2.10 - 16.26
%RSD(P2mH)	1.02 - 2.00	1.10 - 1.91	1.64 - 11.99	1.26 - 9.96	2.61	2.01 - 21.41
%RSD(P3mH)	0.79 - 1.98	0.60 - 1.97	0.54 - 8.51	0.74 - 4.52	2.25	2.01 - 11.53
Complite	99.91 - 99.98	99.76 - 99.97	99.70 - 9.98	99.47 - 99.98	99.59	95.68 - 99.69
Correl	99.91 - 99.96	99.52 - 99.95	99.40 - 99.96	99.03 - 99.97	99.17	91.35 - 99.56

	mH-Value	Area-Value	mH-Value	Area-Value	mH-Value	Area-Value
%RSD(P1mH)	4.01 - 7.46	1.14 - 6.71	4.10 - 11.38			10.59 - 11.50
%RSD(P2mH)	4.21 - 9.86	9.73 - 13.91	4.43 - 15.16			10.79 - 15.59
%RSD(P3mH)	2.62 - 7.99	3.00 - 14.55	3.42 - 18.04			15.51 - 16.05
Complite	98.75 - 99.86	97.75 - 99.29	90.20 - 98.85			86.19 - 91.48
Correl	98.25 - 99.67	95.75 - 98.83	83.05 - 98.88			85.25 - 85.26

Result and Discussion



PCA Intra – Inter Day Precision



Conclusion



- The %RSD of each fingerprint peaks correlated to the similarity HCA-PCA levels. The lowest of %RSD-values on intra and inter day precision produced better similarity values.
-