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Dear colleague,

**Acceptance to present a paper for the conference**

Thank you for submitting an abstract entitled:

**IDENTIFICATION OF TROPICAL PLANTS LEAVES IMAGE BASED ON PRINCIPAL COMPONENT ANALYSIS**

for the International Conference-Sustainable Agriculture, Food and Energy (SAFE2016).

We are pleased to inform you that the committee has decided that your paper has been accepted for **oral presentation** in this conference. The full paper is optional. If you want to publish your paper in **IJASEIT Journal (Indexed by SCOPUS)**, you must submit an original and unpublished full papers through the 4<sup>rd</sup> International Conference Sustainable Agriculture, Food, and Energy (SAFE2016) using [EasyChair for SAFE2016 Submission System](http://safe2016.safetainability.org) at <http://safe2016.safetainability.org> or by e-mail to: [safetainability2013@gmail.com](mailto:safetainability2013@gmail.com).

Your manuscript is strictly limited to 4-10 pages of A4 paper in single space using Template\_SAFE2016. The deadline for full paper submission is 15<sup>th</sup> September 2016.

Thank you very much and looking forward to seeing you in Colombo!



**Prof. P. Mangala C. S De Silva**  
Department of Zoology  
Faculty of Science  
University of Ruhuna  
Matara  
Sri Lanka



**Prof. Dr.P.Mangala C.S.De Silva**  
Local Conference Coordinator

**Dr.Novizar Nazir**  
Executive Chairman of SAFE 2016  
SAFE-Network Coordinator

Please print and bring with you to the conference

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| <b>Event</b><br><b>International Conference Sustainable Agriculture, Food and Energy 2016 (SAFE 2016)</b>  |      |
| <b>Date+Time</b><br>Thursday, Oct. 20, 2016, at 9.00 am-13.00 pm : Colombo City Tour<br>Thursday, Oct. 20, 2016, at 19:00 pm Welcome Dinner<br>Friday, Oct 21, 2016, at 08:00 am-17.00 pm (Conference)<br>Saturday, Oct. 22, 2016, at 8.00-12.00 am (Conference) |  |
| <b>Location</b><br><b>BERJAYA HOTEL, Colombo-SRI LANKA</b>   | <b>Indra Laksmana</b><br>/   |
| <b>Event Management</b><br>  | <b>Affiliation</b><br><b>Agriculture Politechnic of Payakumbuh</b><br><b>INDONESIA</b> |
| <b>Payment</b><br><b>US \$ 100.00 (Non-Student)</b><br><b>US \$ 70.00 (student)</b>  | <b>Registration Number 2016-156</b>  |

All payment must be completed by **September 15th, 2016** through wire transfer to: BNI CABANG PADANG. Account Name: AISMAN  
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# Identification of Tropical Plants Leaves Image Base on Principal Component Analysis

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**Abstract**— Difference and variation of leaves shape is usually used as primary identifier of the plant species. But some plants may have a similar leaf shape and thus require another more accurate identifier. This study applied principal component analysis (PCA) methods for identifying tropical plant species from the shape of the leaves. This method simplified the observed variables by reducing the dimensions of the information that is stored as much as 75%, so it did not eliminate important information and can save the data processing time. There were 100 images of leaves taken from several sides of the leaf in JPEG format with which the shape of leaves were look similar, like citrus (*Citrus aurantifolia*), durian (*Durio zibethinus*), guava (*Psidium guajava*), mango (*Mangifera indica*), jackfruit (*Artocarpus heterophyllus*), avocado (*Persea americana*), rambutan (*Nephelium lappaceum*), sapodilla (*Manilkara zapota*), red betel (*Piper crocatum*) and soursop (*Annona muricata*). Identification of those 10 kind plant leaves produced 97% accuracy rate. Measurement systems were designed using the K-fold Cross Validation with  $k = 10$ , the results of experiments shown omission error occurs on the leaves of guava, jackfruit and red betel while twice commission error were found on the leaves sapodilla and once on citrus leaves.

**Keywords**— Leaves image, tropical plants identification, Principal Component Analysis



**SURAT TUGAS**Nomor : **4551** /PL25/LL/2016

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Untuk mengikuti International Conference-Sustainable Agriculture Food and Energy (SAFE 2016) di Berjaya Hotel, Colombo Sri Lanka pada tanggal 20 s/d 22 Oktober 2016.

Demikian surat tugas ini dibuat agar dapat dilaksanakan dengan sebaik – baiknya.

03 Oktober 2016

Direktur,

Ir. Hj. Gusmalini, M.Si



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# Transforming Awareness of the Importance of Sustainability through Joint Action

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Asia Pacific Network for Sustainable Agriculture, Food and Energy







SAFE 2016 - International Conference  
Sustainable Agriculture, Food and Energy  
October 20-22, 2016, SRI LANKA

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International Conference-Sustainable Agriculture, Food and Energy (SAFE 2016)  
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