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TWC/31/29
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DATE: May 13, 2013

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

TECHNICAL WORKING PARTY ON AUTOMATION AND COMPUTER PROGRAMS

Thirty-First Session
Seoul, Republic of Korea, June 4 to 7, 2013

AIM: MANAGEMENT OF COLOR ANALYSIS

Document prepared by experts from France

1. The Technical Committee (TC), at its forty-ninth session, held in Geneva, from March 18 to 20, 2013, agreed with the recommendation of the Technical Working Party on Automation and Computer Programs (TWC) concerning the inclusion of the AIM software from France in document UPOV/INF/16, as set out in paragraph 19 of document TC/49/12 “Exchangeable software” (see document TC/49/41 “Report on the conclusions”, paragraph 107).

2. The CAJ, at its sixty-seventh session, held in Geneva, on March 21, 2013, noted that it would be invited, at its sixty-eighth session, to be held in Geneva in October 2013, to consider a proposed revision of document UPOV/INF/16 “Exchangeable Software” (see document CAJ/67/14 “Report on the conclusions”, paragraph 56).

3. The Annex to this document contains a copy of a presentation on AIM software that will be made to the TWC, at its thirty-first session, in order to provide further information concerning the use of the AIM software, for color analysis in France.

4. *The TWC is invited to note the information contained in Annex to this document.*

[Annex follows]

Groupe d'Étude et de contrôle des Variétés Et des Semences

AIM

Management of Color Analysis

Experience from France

June 4 to June 7, 2013 (*Seoul, South Corea*)

Groupe d'Étude et de contrôle des Variétés Et des Semences

PROGRAM OF THE TALK

- GENERAL ARCHITECTURE OF AIM APPLICATION
- GENERAL PROCESS OF COLOR ANALYSIS
- DETAIL OF THE COLOR ANALYSIS PROCESS
- DEMONSTRATION THROUGH AN SIMPLE EXAMPLE

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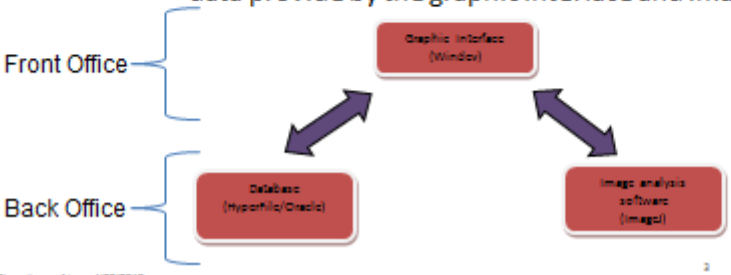
GENERAL ARCHITECTURE

The Aim application is based on the following architecture

A front office → Graphic Interface written with the development tool Windev to manage studies (Declare, Retreive, Export, Calculate, Levels of agregation, ...)

A back office → Image analysis software with the freeware ImageJ to define processing applied on images

Database software with Hyperfile or Oracle to store data provide by the graphic interface and Image analysis



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General Process of color analysis

High number of combination of RGB for each image

STEP 1 = Macro ImageJ (**Threshold Value** + Filter)

STEP 2 = Color classification (Ex: RHS)

STEP 3 = Rank Color

Low number of combination of RGB for each image + Link with colors of RHS classification

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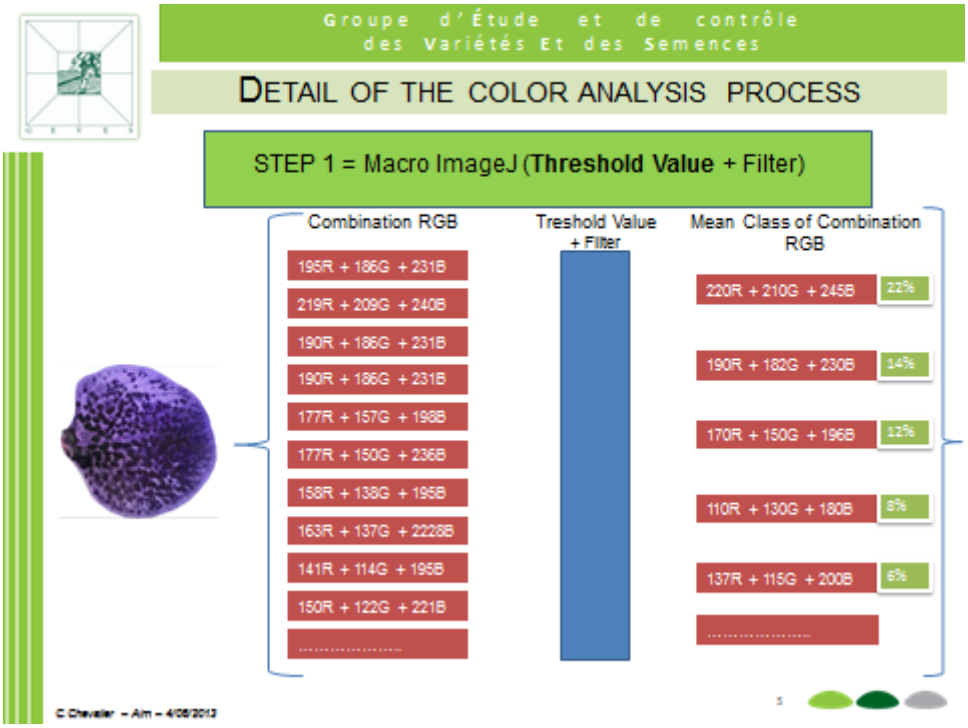
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DETAIL OF THE COLOR ANALYSIS PROCESS
STEP 1 = Macro ImageJ (Threshold Value + Filter)
Combination RGB
Treshold Value + Filter
Mean Class of Combination RGB
195R + 186G + 231B
219R + 209G + 240B
190R + 186G + 231B
190R + 186G + 231B
177R + 157G + 198B
177R + 150G + 236B
158R + 138G + 195B
163R + 137G + 222BB
141R + 114G + 195B
150R + 122G + 221B
220R + 210G + 245B 22%
190R + 182G + 230B 14%
170R + 150G + 196B 12%
110R + 130G + 180B 8%
137R + 115G + 200B 6%
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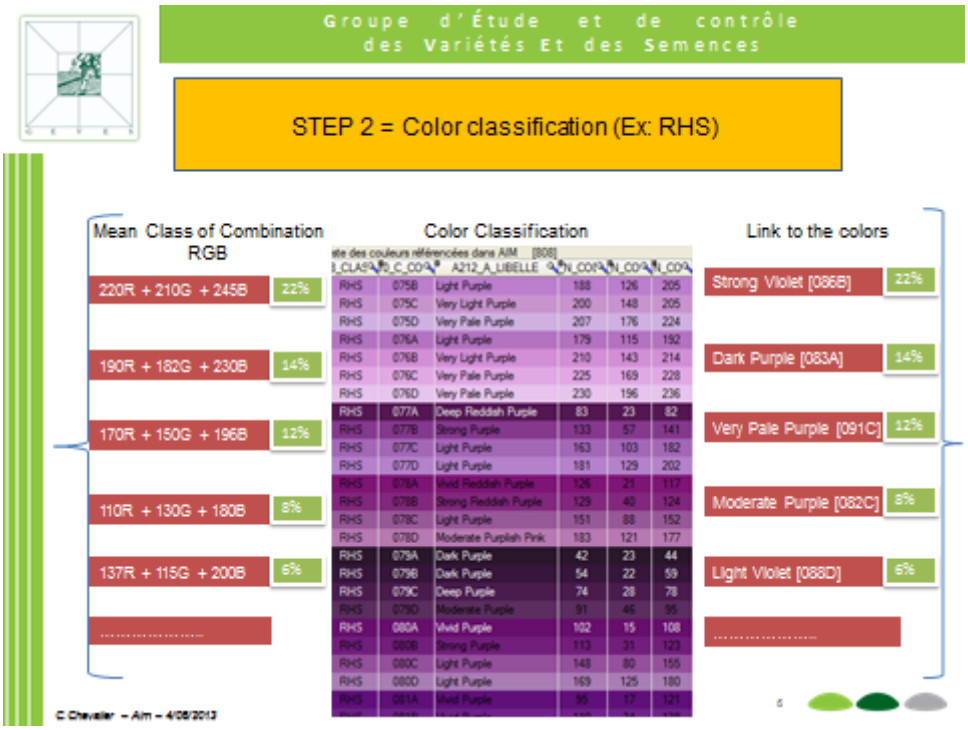
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STEP 2 = Color classification (Ex: RHS)
Mean Class of Combination RGB
Color Classification
Link to the colors
220R + 210G + 245B 22%
190R + 182G + 230B 14%
170R + 150G + 196B 12%
110R + 130G + 180B 8%
137R + 115G + 200B 6%
Strong Violet [086B] 22%
Dark Purple [083A] 14%
Very Pale Purple [091C] 12%
Moderate Purple [082C] 8%
Light Violet [088D] 6%
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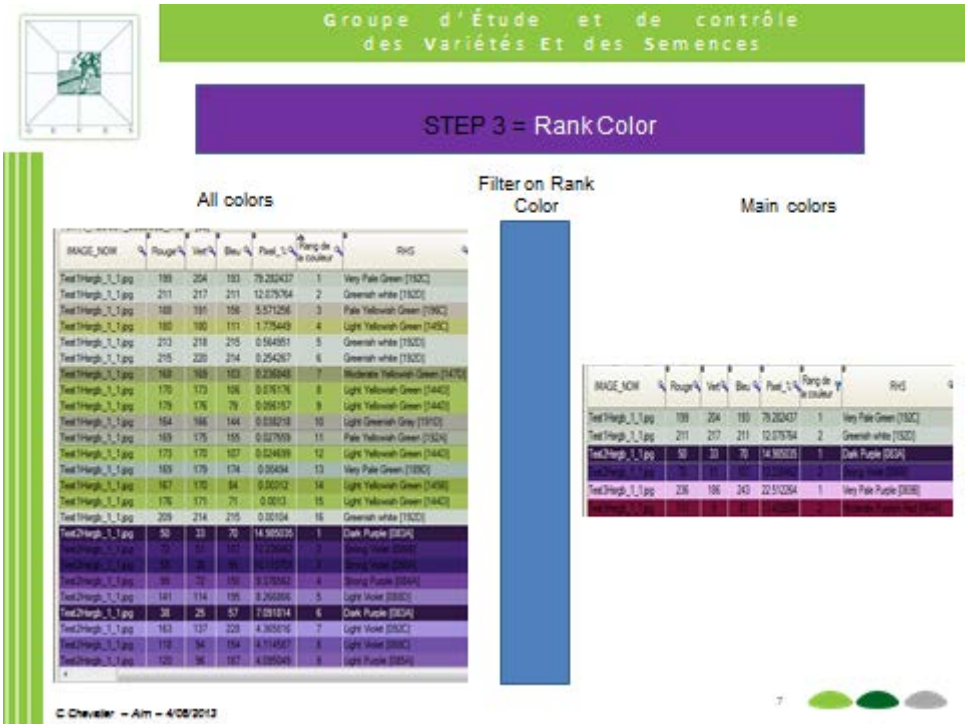
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STEP 3 = Rank Color
All colors
Filter on Rank Color
Main colors
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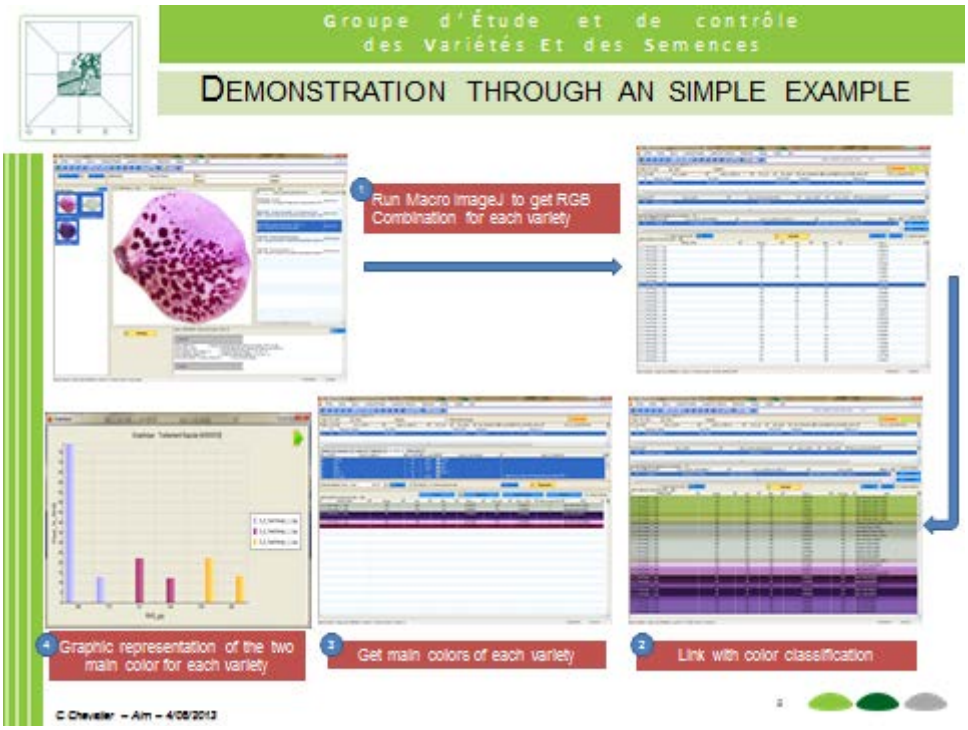
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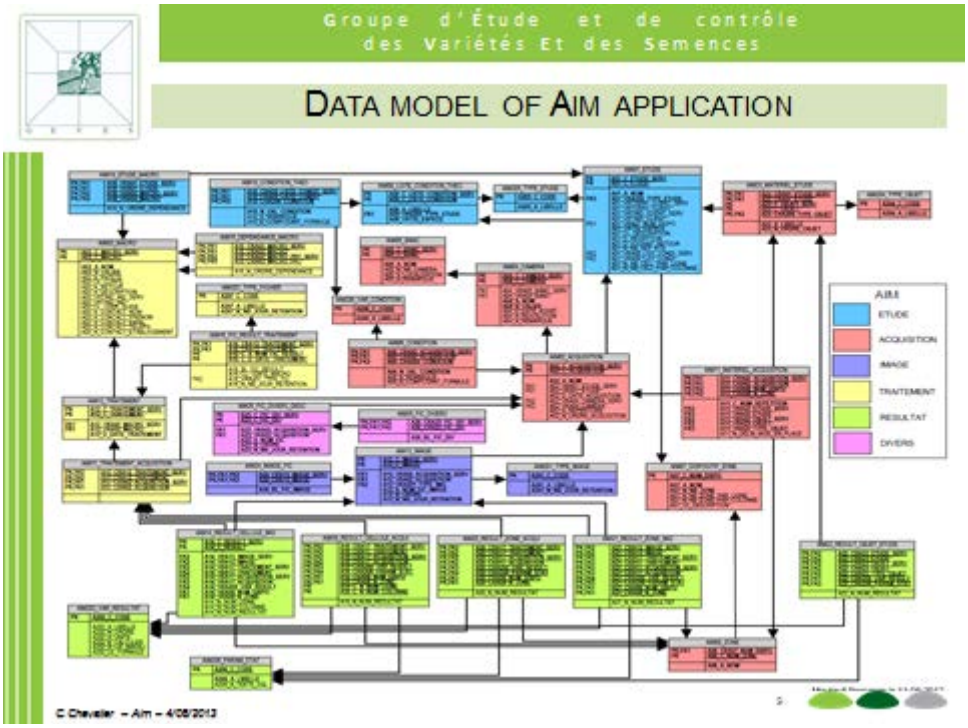
DEMONSTRATION THROUGH AN SIMPLE EXAMPLE
1 Run Macro ImageJ to get RGB Combination for each variety
2 Link with color classification
3 Get main colors of each variety
4 Graphic representation of the two main color for each variety
C Chevalier – Aim – 4/08/2013



[End of Annex and of document]