Grape Berry: A model for study trafficking and sequestration of anthocyanins
Agnes Ageorges, Camila Gomez, Geneviève Conejero, Nancy Terrier, Veronique Cheynier

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ABSTRACTS AND PROGRAM BOOKLET

6th International Workshop on Anthocyanins

SEPTEMBER 11 – 14, 2011
GREAT WOLF LODGE
CHARLOTTE/CONCORD, NORTH CAROLINA

Celebrating the Vivacity of Color

plantsforhumanhealth.ncsu.edu
Program

ANTHOCYANINS TRAFFICKING AND VACUOLAR FUNCTIONS
4:40 – 5:35 pm  Symposium  David H. Murdock Core Laboratory Event Room
Convener: Richard Espley, New Zealand Institute for Plant & Food, NZ
4:40  Introduction (R. Espley)
4:45  S-13  **KEYNOTE** Grape Berry: A Model for Study Trafficking and Sequestration of Anthocyanins
**Agnes Ageorges**, INRA, France
5:15  S-14  Acyttransferases Involved in Anthocyanin Biosynthesis: A Functional and Evolutionary Perspective
**Kallam Kalyani**, John Innes Centre, UK
5:40 pm  Board Buses for Pity’s Sake Lodge, Home of David H. Murdock
6:00 – 8:00 pm  BarBQ & Bluegrass  Pity’s Sake Lodge
8:00 pm  Board Buses to Return to Great Wolf Lodge

Tuesday, September 13
ANTHOCYANINS AND HUMAN HEALTH – II
8:30 – 10:05 am  Symposium  White Pine 3
Convener: Mary Ann Lila, NCSU’s Plants for Human Health Institute, USA
8:30  Introduction (M. Lila)
8:35  S-15  **KEYNOTE** Factors Affecting Anthocyanin Detection in Animal Samples
**Wilhelmina Kalt**, Agriculture and Agri-Food Canada, Canada
9:05  S-16  Anti-diabetic Effects of Anthocyanins from Maqui Berry (**Aristolotelia chilensis**)
**Leonel Rojo**, SEBS, Rutgers University, USA
9:25  S-17  Ingestion of Blackcurrant Anthocyanins Facilitates Exercise-induced Natural Immunity
**Suzanne Hurst**, New Zealand Institute for Plant & Food Research, NZ
IWA : 6th International Workshop on Anthocyanins:
September 11 – 14, 2011  Charlotte/Concord, North Carolina

Key Note - Invitée
1- AGEORGES AGNES
2-Trafficking, anthocyanin, grapevine
3-Category : Anthocyanins Trafficking and Vacuolar Functions
4- Oral Presentation
5- Ageorges Agnes
   Gomez Camila
   Conejero Geneviève
   Terrier Nancy
   Cheynier Véronique
6- Grape Berry : A Model for Study Trafficking and Sequestration of Anthocyanins.

AGNES AGEORGES ¹, Camila Gomez ¹, Geneviève Conejero ², Nancy Terrier ¹ and Véronique Cheynier ¹. ¹INRA, UMR1083 Sciences Pour l’Œnologie, F-34060 Montpellier, FRANCE ; ²INRA, UMR5004 Plate-forme Histocytologie et Imagerie Cellulaire Végétale, CIRAD, F-34398 Montpellier, FRANCE. Email: ageorges@supagro.inra.fr

Anthocyanins are polyphenolic pigments responsible for most of the color diversity found in plants, and represent a huge proportion of soluble flavonoids present in grapevine (Vitis vinifera L.). Although the biosynthesis of these compounds has been described in details in many plants, the mechanisms responsible for their transport and accumulation within plant cells remain unclear. We will review the known proposed mechanisms of flavonoid uptake and accumulation in grapevine, with reference to the transport models and membrane carrier proteins.

We used MybA1 transformed hairy roots ¹ as a grapevine model tissue producing anthocyanins to study their cellular trafficking and vacuolar sequestration. In these tissues, anthocyanin accumulate in different sub-vacuolar structures. We will discuss about the possible origin of these colored structures and the consequences for pigmentation will be presented. Moreover different molecular actors putatively involved in vacuolar sequestration of anthocyanins were recently identified: a Glutathion S-transferase (GST) ² and two MATE-type transporters, which specifically mediate acylated anthocyanin transport in vitro ³. We will describe the different grapevine molecular actors participating to the anthocyanin transport, and discuss possible transport mechanisms in grapevine tissues and show how these results provide a new perspective on the transport and sequestration of flavonoids in plants.