MIMMA
Metabolism, bio-Engineering of Microalgal Molecules and Applications

The role of plastids: Photosynthesis and beyond

Benoît SCHOEFS — Le Mans Université

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Eva DARKO

MTA•ATK

mms
mer molécules santé
Connaissance et valorisation de la biodiversité des écosystèmes marins côtiers et estuariens

institut universitaire mer et littoral
FR CNRS 3473

cnrs
dépasser les frontières

A long-term cooperation, not always financed

90-99

- ELTE – Liège University (Belgium)
- Biological Research Center Szeged – Lille University
- Biological Research Center Szeged - South Bohemia University

06-11

- ELTE – Dijon University
- University of West Hungary – Dijon University

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- Agriculture Research Center Martonvasar – Le Mans University
- ELTE – Le Mans University

1990 – 1999 – initiation of the network

- MSc and PhD: cooperation between Liège U (Belgium) and ELTE – Chlorophyll biosynthesis – Bela Böddi and Ferenc Lang
- Post-doc: cooperation with Lille University – Eva Darko – optimization of pigment separation by HPLC (**TET program**)

EVIER Journal of Chromatography A, 876 (2000) 111–116

www.elsevier.com/locate/ch

Improved liquid chromatographic method for the analysis of photosynthetic pigments of higher plants

Eva Darko[a,b], Benoît Schoefs[b,*], Yves Lemoine[a]

Photosynthetic Pigments, Photosynthesis and Plastid Ultrastructure in *Rbc*S Antisense DNA Mutants of Tobacco (*Nicotiana tabacum*)

Benoît Schoefs[a,*,§], Eva Darko[a,#] and Steve Rodermel[b]

[a] Laboratory of Biomembranes, University of South Bohemia at Ceske Budejovice, Branisovska 31, CZ-370 05 Ceske Budejovice, Czech Republic
[b] Department of Botany, Iowa State University, Ames, Iowa 50011, USA

* Author for correspondance and reprint requests

Z. Naturforsch. **56 c,** 1067–1074 (2001); received June 29/August 23, 2001

la

- Associate professor at the University South Bohemia
  - 1998: International Congress on Photosynthesis in Budapest
  - 1998-99: 1 year postdoc position for Eva Darko in my team
  - Effect of RuBisCO diminution in transgenic lines of tobacco

2006 – 2011: confirmation of the network

Photosynth Res (2010) 105:143–166
DOI 10.1007/s11120-010-9568-2

REVIEW

Etioplast and etio-chloroplast formation under natural conditions: the dark side of chlorophyll biosynthesis in angiosperms

Katalin Solymosi · Benoît Schoefs

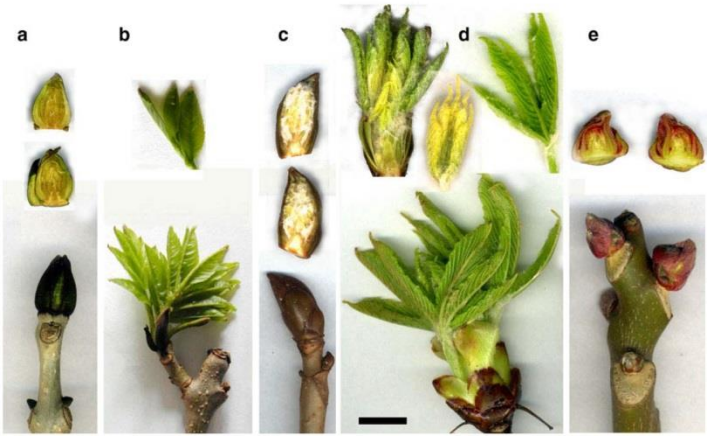
- Does etioplast exist in natural environment?

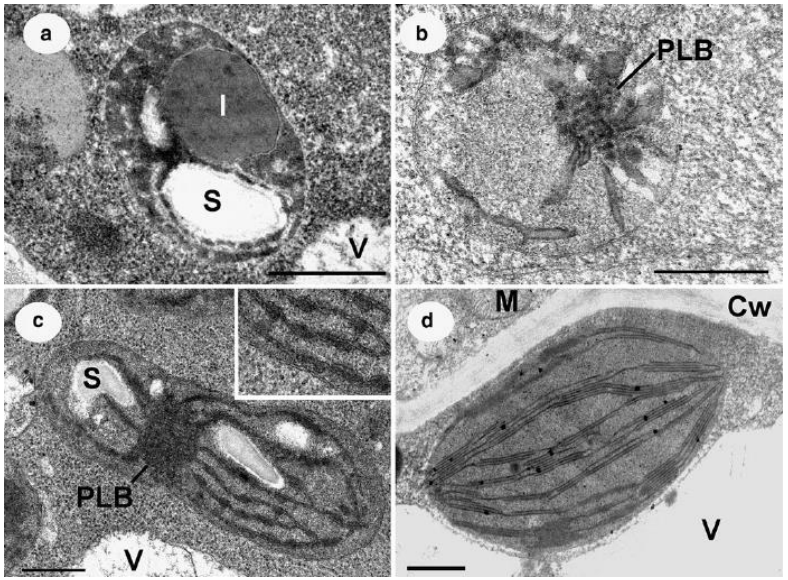
Planta (2012) 235:1035–1049
DOI 10.1007/s00425-011-1559-9

ORIGINAL ARTICLE

High biological variability of plastids, photosynthetic pigments and pigment forms of leaf primordia in buds

Katalin Solymosi · Dominique Morandi · Károly Bóka · Béla Böddi · Benoît Schoefs





- Full professorship position at Dijon University
  - Does etioplast exist in natural environment?
  - Chloroplast transporters and stress

OPEN ACCESS Freely available online

PLOS ONE

Photosystem II Function and Dynamics in Three Widely Used *Arabidopsis thaliana* Accessions

Lan Yin[1], Rikard Fristedt[2¤], Andrei Herdean[1☯], Katalin Solymosi[3☯], Martine Bertrand[4☯], Mats X. Andersson[1☯], Fikret Mamedov[5☯], Alexander V. Vener[2], Benoît Schoefs[6], Cornelia Spetea[1*]

Göteborg University

Plant Physiology

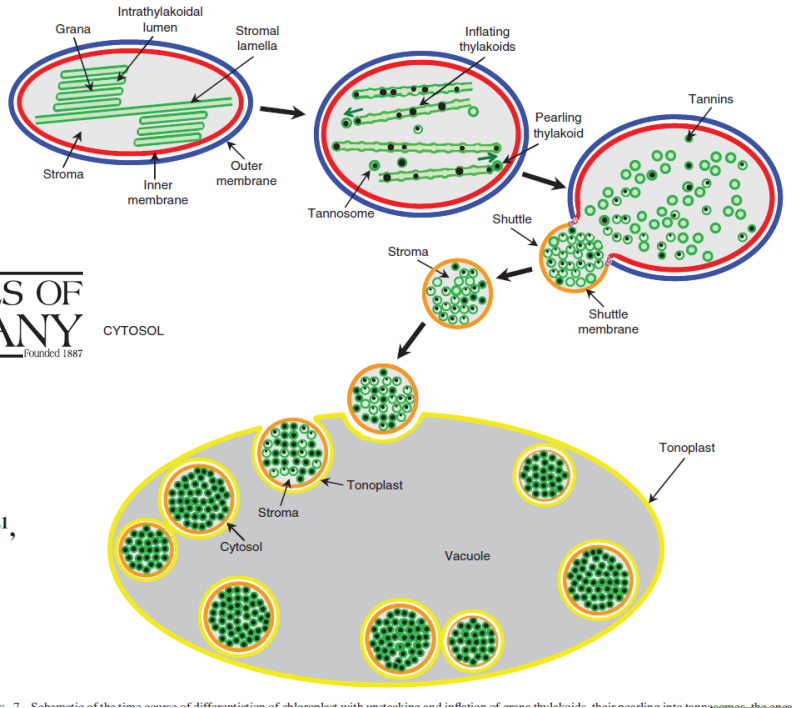
Role of Thylakoid ATP/ADP Carrier in Photoinhibition and Photoprotection of Photosystem II in Arabidopsis[1[W][OA]]

Lan Yin, Björn Lundin[2], Martine Bertrand, Markus Nurmi, Katalin Solymosi, Saijaliisa Kangasjärvi, Eva-Mari Aro, Benoît Schoefs, and Cornelia Spetea*

Göteborg University

2011-: maturity of the cooperation

- Full professorship position at Le Mans University
  - Katalin Solymosi
    - High-level professorship grant (Région Pays de la Loire): 1 mois
    - Tannosome: a new plastid transformation for tannin accumulation in grapewine



Annals of Botany **112**: 1003–1014, 2013
doi:10.1093/aob/mct168, available online at www.aob.oxfordjournals.org

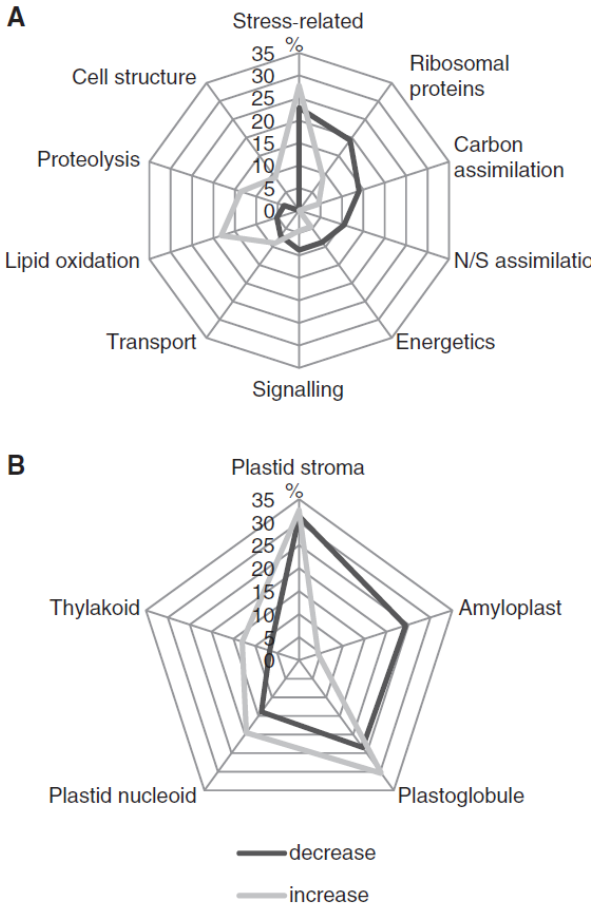
ANNALS OF BOTANY Founded 1887

The tannosome is an organelle forming condensed tannins in the chlorophyllous organs of Tracheophyta

Jean-Marc Brillouet[1], Charles Romieu[2], Benoît Schoefs[3], Katalin Solymosi[4], Véronique Cheynier[1], Hélène Fulcrand[1], Jean-Luc Verdeil[2,5] and Geneviève Conéjéro[5,6,*]

UMR Supagro/INRA/CIRAD Montpellier

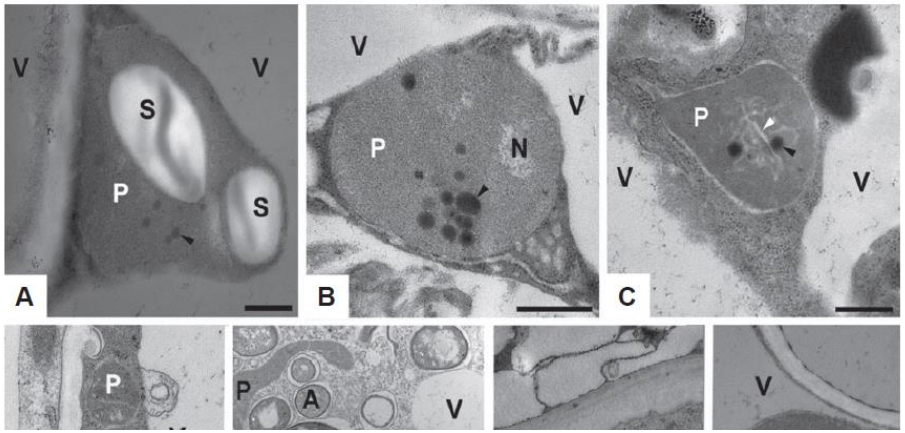
Mycorrhization and plastids



Physiologia Plantarum 159: 13–29. 2017

Changes in plastid proteome and structure in arbuscular mycorrhizal roots display a nutrient starvation signature

Zeina Daher[a,†], Ghislaine Recorbet[a,†,*], Katalin Solymosi[b], Stefanie Wienkoop[c], Arnaud Mounier[a], Dominique Morandi[a], Jeannine Lherminier[a], Daniel Wipf[a], Eliane Dumas-Gaudot[a] and Benoît Schoefs[d]



PLOS ONE

RESEARCH ARTICLE

Mycorrhiza Symbiosis Increases the Surface for Sunlight Capture in *Medicago truncatula* for Better Photosynthetic Production

Lisa Adolfsson[1], Katalin Solymosi[2☯], Mats X. Andersson[1☯], Áron Keresztes[2], Johan Uddling[1], Benoît Schoefs[3]*, Cornelia Spetea[1]*

UMR CNRS/INRA/U Dijon
University of Gothenburg

- Full professorship position at Le Mans University
  - Eva Darko (Agriculture Research Center at Martonvasar

Summary and perspectives

- Long term cooperation: already 20 years
- Major results
  - Chloroplast formation and functionning
  - Plasticity of the plastid metabolism
- High level of production: 13 publications + 4 in preparation
- Future
  - Science
    - Microalgae and carbon metabolism
    - LED effects on photosynthetic organisms
  - Better funding: MSc and PhD
- Thanks to the French Institute/French Embassy, universities, Erasmus program, colleagues, FranceLab

ERASMUS+
2014 - 2020 programme for Education, Training, Youth, and Sport

Région PAYS DE LA LOIRE

Le Mans Université

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