Asic
A unique source of information on coffee research



Hanoi VIETNAM

11-14 Sept. 2023 Melia Hanoi Hotel

BOOK OF ABSTRACTS

29th Conference

Asic 2023

Agronomy | Chemistry | Technology | Physiological effects

www.alphavisa.com/asic/2023

WELCOME

Agronomy I Chemistry I Technology I Physiological effects

ASIC (Association for the Science and Information on Coffee) has been existing for 56 years already and has organized regularly conferences on coffee science most usually every second year, trying to alternate coffee producing and consuming countries.

I would like to take this opportunity to warmly thank, on behalf of ASIC and the scientific community working on coffee, the Vietnamese authorities who have accepted to organize this 29th conference.

Vietnam is the second largest coffee producing country in the world and the largest producer of Robusta coffee. In the north of the country, Arabica coffee is also grown in the mountain areas.

This conference represents a unique opportunity to gather specialists from all over the world working on different aspects of coffee science and technology. During the conference, all possible aspects of coffee science will be developed and the participants will be able to hear and share novelties on the different following topics:

- **agronomy:** genetics, botany, agrotechnology, pests and diseases, agroecology, etc.;
- **chemistry:** coffee analysis, chemical composition, aroma, etc.;
- **technology:** green coffee processing, roasting, grinding, extraction, decaffeination, etc.;
- **physiological effects:** coffee and health.

As the President of ASIC, I am cordially inviting all scientists working in the field of coffee and interested in sharing their research data to presently take good care of themselves and families. Do not forget to add to your agenda the next **29th ASIC Conference** that will be held in **Hanoi, Vietnam, from 11 Sept. - 14 Sept. 2023** which will allow taking advantage of all nice meeting and learning opportunities offered by the event. We will be very happy to welcome you in Hanoi next year.

Astrid NEHLIG, President of ASIC

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Regulatory elements in coffee flower evocation related genes are responsive to temperatures principally

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Rationale:
Flower evocation occurs when plants make the transition from vegetative to reproductive meristems, in response to environment signals. Coffee flower evocation + flower bud emission are apart from anthesis by dormancy, and are responsive to different signals (Majerowicz and Söndahl 2005). A model for coffee phenology in southeastern Brazil became available (Camargo and Camargo 2001), which defines decreases in day length and temperatures as triggers to flower evocation. Flower evocation related *CONSTANS* (*CO*) and *FLOWERING LOCUS C* (*FLC*) genes are responsive to day length and vernalization, respectively. So, would *Coffea* spp. orthologs to these *Arabidopsis* genes display similar regulatory cis-elements?
Material & Methods:
C. canephora, *C. eugenioides* and *C. arabica* var. Caturra orthologs to *Arabidopsis FLC* and *CO* were identified. The relative numbers (cis-els/ortholog number) of temperature and light related cis-els identified (PLACE software) 1000 bps upstream the translation start codons were compared to those identified in *Arabidopsis* and to each other.
Results:
No significant difference was found between genera, regarding light or temperature related regulatory cis-els in *CO* or *FLC* promoters. Regardless, *CO* orthologs display higher frequency but lower diversity of temperature related cis-elements. By their turn, *FLC* orthologs also display more temperature than light related regulatory elements, but the temperature related elements are more diverse.
Conclusions & Perspectives:
Similarity to *Arabidopsis* regarding cis-elements indicate that both genera could respond to light and temperature controlling flower evocation. This characteristic fits the model proposed by Camargo and Camargo (2001). Despite absence of statistical significance, *FLC* genes are probably more responsive to temperatures than to light, as expected, and would be able to interact with a larger number of temperature related transcription factors. Surprisingly, *CO* orthologs also could respond strongly to temperatures, by interaction with a very reduced range of numerous transcription factors. Enhanced responsiveness to temperatures could grant coffee plants adaptability in the tropics, where temperatures can oscillate and display higher amplitudes than day length and flower evocation shall be impaired under hot long days.

References:
1. Camargo A, Camargo M 2001 Bragantia 60:65-68.
2. Majerowicz N, Söndahl MR 2005 Braz J Plant Physiol 17:247-254.

Table of contents