

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

Plant Science
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- Flower evocation = transition from vegetative to reproductive meristems.
 - Camargo and Camargo (2001): decreases in day length and temperatures trigger coffee flower evocation.
- Coffee flower evocation is apart from anthesis by dormancy and responsive to different signals (Majerowicz and Söndahl 2005).
- *CO* and *FLC* model genes are responsive to day length and vernalization.
- Would *Coffea* spp. and *Arabidopsis* genes display similar regulatory cis-elements?

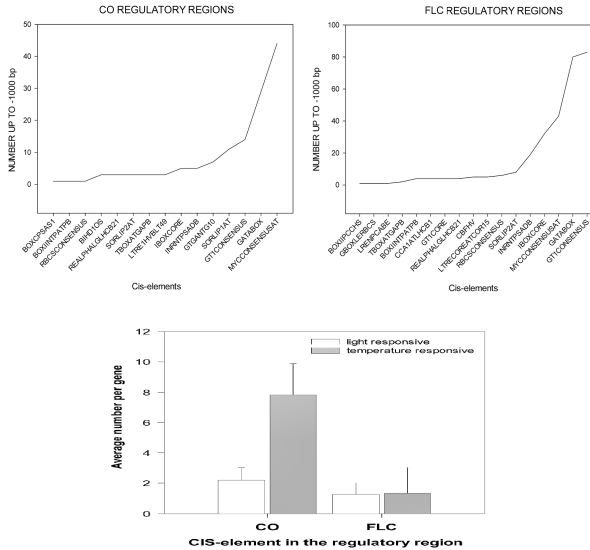


Figure 1: distribution of temp and light responsive cis-els in *Coffea* flower evocation genes regulatory regions

To answer that question, the orthologs of *A. thaliana* *CO* and *FLC* were identified *in silico* and the regulatory elements up to -1000 kb were found using the PLACE software and counted

It was found:

- no difference between genera
- *Coffea CO*: temperature related *CIS*-elements are more frequent than light related ones and less diverse
- *Coffea FLC*: temperature related *Cis*-els are more frequent but highly diverse (Figure 1)

Similarity to *Arabidopsis* regarding cis-elements indicates that both genera could respond similarly to similar environment signals controlling flower evocation. These characteristics fit the model proposed by Camargo and Camargo (2001), which considers light and temperature important for flower evocation. Despite absence of statistical significance, *FLC* genes are probably more responsive to temperatures than to light, as expected. Surprisingly, *CO* orthologs also could respond strongly to temperature.