

# The Characteristics and Expression Analysis of RALF-Like Genes in *Camellia oleifera*

## 油茶 *CoRALFs* 的结构特征及表达分析

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**Abstract:** Rapid alkalization factors (RALFs) are small peptides rich in cysteine, playing an important role in plant reproductive growth. It is known that some of them are involved in pollen tube growth, micropyle guidance and gamete fusion, but it is not clear whether they are involved in self-incompatibility (SI). Here, 22 RALF peptides were identified from *Camellia oleifera* that is self-incompatible. Like most RALFs, 17 RALF peptides included the RRXL cleavage site and the YISY motif, which were important for RALF activity. The phylogenetic tree analysis showed that there were five RALF peptides belonging to the same clade as some RALFs from *Brassicaceae*, and they lacked these sites, while their mature peptides had the same motif at the C-terminal. Their expression levels in various vegetative and reproductive tissues detected by the real-time fluorescence quantitative PCR, suggested that 14 of them were expressed in pollen tubes, while the expression levels of nine peptides were significantly increased in pollen tubes treated with MAPK inhibitor, indicating they may be involved in pollen tube growth. Some of them were differentially expressed in self- and cross-pollinated pistils, suggesting they may be involved in SI.

**Keywords:** *Camellia oleifera*; RALFs; structure characteristics; expression

