



Ornamental plants architectural characteristics in relation to visual sensory attributes: a new approach on the rose bush for objective evaluation of the visual quality

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Mots-clés	Architectural analysis [13], linear regression [14], Rosa hybrida [15], sensory profile [16], visual appearance [17], Woody ornamental plant [18]
Résumé en anglais	<p>Within ornamental horticulture context, visual quality of plants is a critical criterion for consumers looking for immediate decorative effect products. Studying links between architecture and its phenotypic plasticity in response to growing conditions and the resulting plant visual appearance represents an interesting lever to propose a new approach for managing product quality from specialized crops. Objectives of the present study were to determine whether architectural components may be identified across different growing conditions (1) to study the architectural development of a shrub over time; and (2) to predict sensory attributes data characterizing multiple visual traits of the plants. The approach addressed in this study stands on the sensory profile method using a recurrent blooming modern rose bush (<i>Rosa hybrida</i> 'Radrazz') presented in rotation using video stimuli. Plants were cultivated under a shading gradient in three distinct environments (natural conditions, under 55 and 75% shading net). Architecture and video of the plants were recorded during three stages, from 5 to 15 months after plant multiplication. Except for visual traits at the scale of the organs, panel performance was highly satisfying for most of the sensory attributes listed. Strong correlations (Spearman's coefficient ranging from 0.72 to 0.98) were found between them and architectural variables extracted from phytomer to plant scale data. Acceptable to very satisfying models were obtained (Q2 ranged from 0.49 to 0.95, normalized RMSEP <17.3%) with simple ordinary least squares regression and variable transformation to encompass non-linear relationships. The proposed approach presents therefore a powerful way to gain a better insight into the architecture of shrub plants together with their visual appearance to target processes of interest in order to optimize growing conditions or select the most fitting genotypes across breeding programs, with respect to contrasted consumer preferences.</p>

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