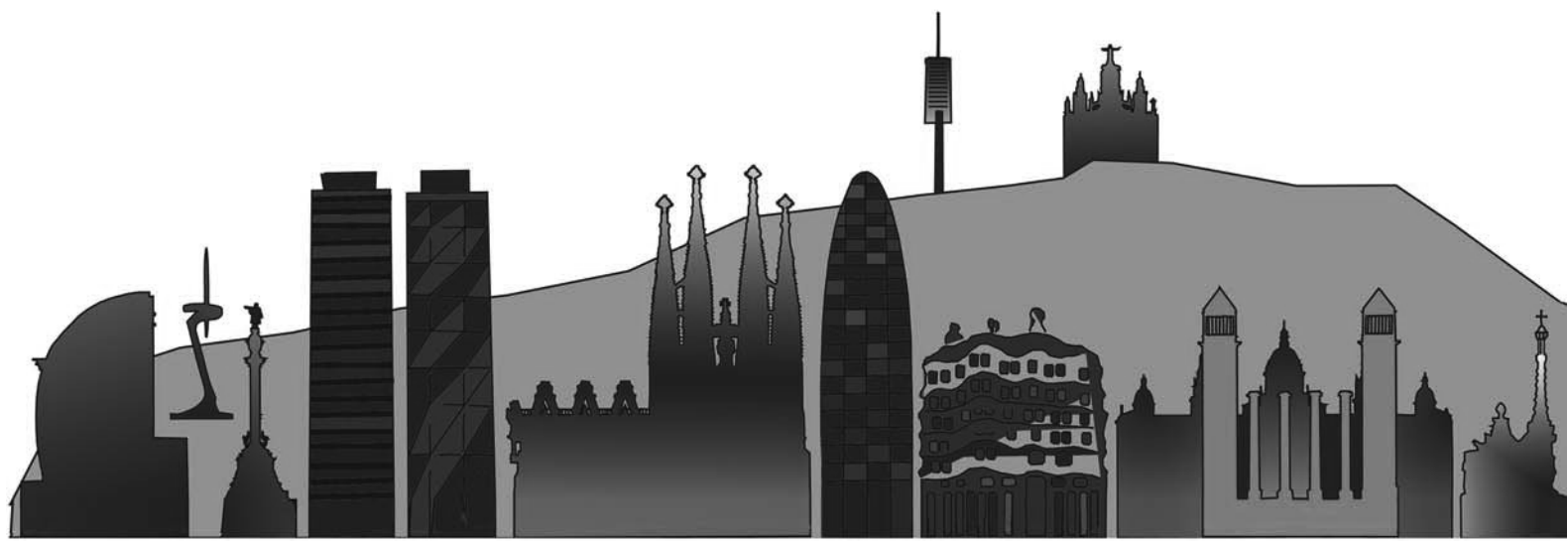


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*Mediterranean Palynology
APLE-GPPSBI-APLF Symposium
Barcelona, 4-6 September 2017*

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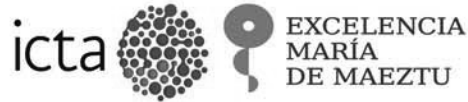
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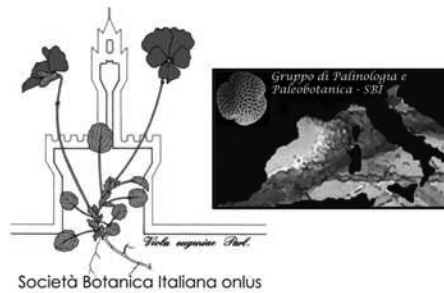
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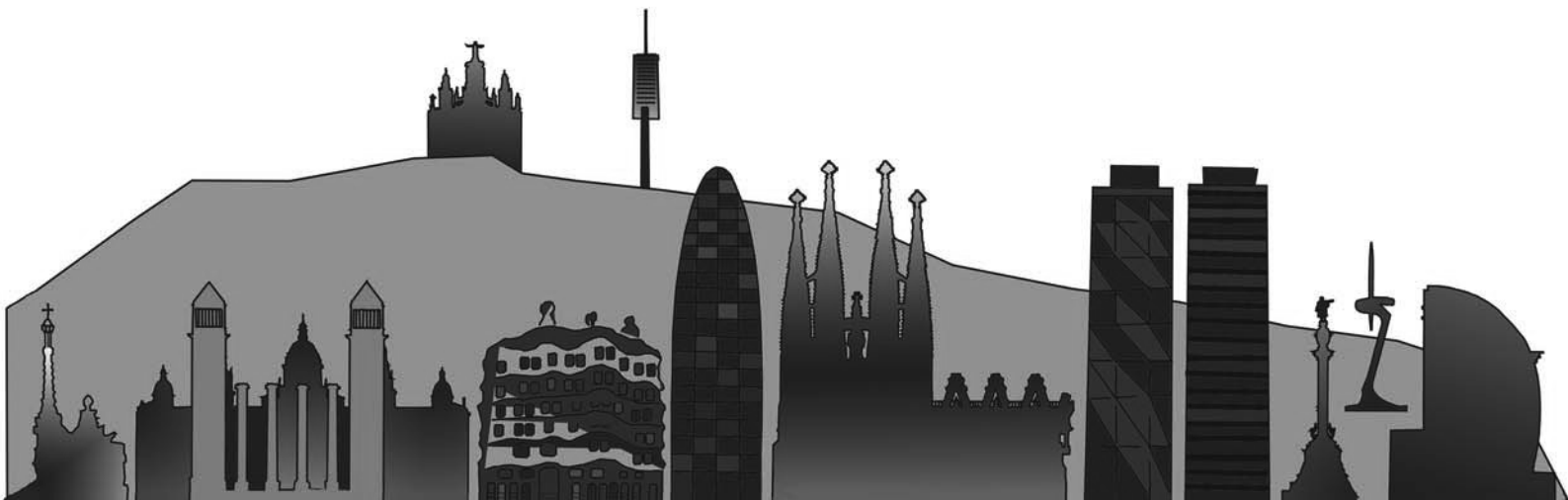
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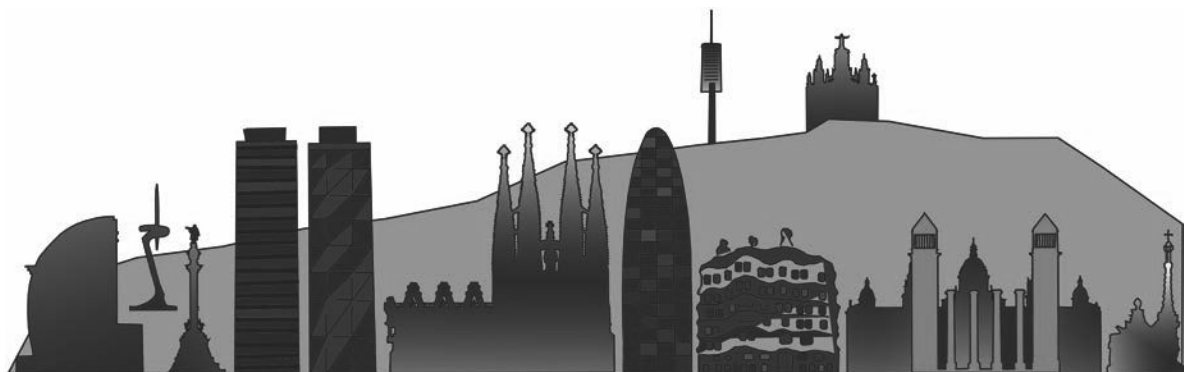
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Pollen production and geolocation of *Casuarina cunninghamiana*

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Casuarina cunninghamiana is a monoecious and wind pollinated tree often used as ornamental in urban green spaces. Pollination takes place in autumn and high amount of airborne pollen are shed close the trees. The aim of this work is to assess total pollen production per tree and to analyze source location in relation to airborne pollen records.

Aerobiological sampling was carried out in Badajoz (SW Spain) from 1993-2016 using a Hirst volumetric sampler. Trees were geo-localized in an area of 1 km around the spore trap. Pollen production was studied in three male trees. On each tree, main branches were counted, 10 of this primary branches were selected to count number of secondary branches, the same with the tertiary and quaternary branches. Quaternary branches bear the flowers at the tip, they are green and included eight, on average, verticillated flower, each one with one stamen. In 25 quaternary branches the male inflorescence was measured and the number of verticils per cm were calculated. 10 stamens for each tree were selected and the number of pollen grains counted.

Only 4 trees were located in the studied area, 2 male and 2 female, 200-250 m close to the spore trap and West forward. Average daily airborne pollen recorded for the period studied was always below 8 pollen grains m⁻³, maximum daily concentration was 68 pollen grains m⁻³ (2/10/2015). Pollen appeared from early August up to early December, mainly concentrated in October. Table 1 includes the values obtained per tree regarding height, total main or primary branches, average number of branches of second, third and fourth order. In the fourth order branches the average number of verticils of flowers along the inflorescences per cm was 12.7, 12.5, 11.5, respectively, in the three trees. The number of pollen grains per stamens (male flower) was on average 6684.5.

Total pollen production per tree in *Casuarina cunninghamiana* was 2.6-9.8x10¹³, range that seems to be related to the height of the tree. Those values represent ones of the highest found in angiosperms. Nevertheless, the amount of airborne pollen recorded was low, this is because pollen sources are few and they are far away from the pollen station.

Table 1. Pollen production in *Casuarina cunninghamiana* (SD Standar Deviation)

Tree	height	branch 1			branch 2			branch 3			branch 4		verticils		Total	Total pollen
	meters	total	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	stamens	per tree		
1	4.9	65.0	10.1	3.0	47.5	39.3	195.4	44.5	42.3	7.1	1.5x10 ¹⁰	9.8x10 ¹³				
2	4.4	50.0	9.1	3.1	49.2	10.6	186.2	111.5	26.0	8.0	7.0 x10 ⁰⁹	4.7x10 ¹³				
3	3.3	18.0	6.9	2.1	43.3	19.1	154.2	53.0	50.4	11.7	3.9 x10 ⁰⁹	2.6x10 ¹³				