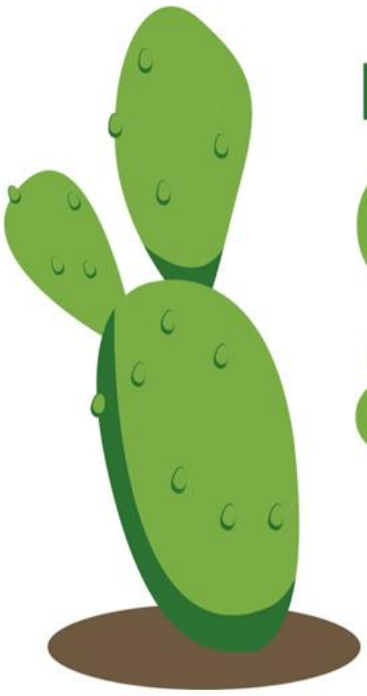

IX International Congress on Cactus Pear & Cochineal

"CAM crops for a hotter and drier world"

COQUIMBO - CHILE 2017

Book of Abstract and
Symposium Program

ISHS

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WELCOME

Dear colleagues, On behalf of the International Society for Horticultural Science (ISHS) and FAO-ICARDA International Technical Cooperation Network on Cactus, the University of Chile honored to receive you at the **IX INTERNATIONAL CONGRESS ON CACTUS PEAR AND COCHINEAL *"CAM crops for a hotter and drier world"*** and the **General Meeting of the FAO-ICARDA International Cooperation Network on Cactus Pear and cochineal (CACTUSNET)**, in **Coquimbo, Chile, March 26th - 30th, 2017.**

The University of Chile, with Dr. Fusa Sudzuki as convener, organized the II International Congress on Cactus pear and Cochineal which was hosted in Santiago in 1992. This special opportunity for hosting the IXth congress, allows us to bring back the congress to Chile, one of the few countries worldwide were cactus pear fruits ("tunas") are commonly consumed and form part of the traditional diet. Many things have changed during these 25 years: Chile has consolidated as one of the world leaders in the fresh fruit export industry and, regarding cacti, new CAM-crops (eg. "Copao" [*Eulychnia acida*], pitahaya) are being developed. And the use of *Opuntias* as a source of fodder and energy has grown in the country.

Now we have the opportunity to share these new developments with the international Cactus community in the beautiful city of Coquimbo, at the southern margin of the driest desert of the world (Atacama) along the Pacific coast and at the feet of the Andes mountain range. The city is surrounded by valley oases which host a third of the Chilean cactus pear growing area. It shall be our pleasure to welcome you back in Chile.

THE CONVENERS

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CACTUS PEAR ROOTS TURNOVER AND TOTAL CARBON SEQUESTRATION RATE DEPENDS ON SOIL VOLUME AVAILABILITY

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The influence of soil volume availability on roots carbon turnover and carbon sequestration rate of cactus pear (*Opuntia ficus-indica*) was studied during three years trial. Since April 2014, 1- year-old cladodes were planted in five different pots size (60, 4, 23, 11 and 7 kg of soil). Due to destructive approach up to nine pots were prepared according to a randomized block design. Three times from April 2014 to June 2016 three pots were destroyed to estimated roots fresh and dry weight. Soil was 1 mm sieved and SOC and $\delta^{13}C$ were determined. Considering $\delta^{13}C$ of cactus pear (-21) and soil used in the trial (-25.4), root carbon turnover, SOC mean resident time, mineralization rate and total contribution of cactus pear to SOC stock were calculated. A repeated measure ANOVA, on all soil analysis, was performed. Results showed a high significance between pots volume and sampling time. $\delta^{13}C$ of soil showed a progressive increase in relation to sampling date and pots size. Pot size, in fact, positively affects roots weight for kg of soil, soil carbon and New Carbon Derived. Mean Resident Time (MRT) of new carbon depended on soil volume, ranging from 8 g of C to 4 g o C for year for larger and smaller pot respectively. In cactus pear (*Opuntia ficus-indica*) soil volume strongly influenced soil carbon turnover in relation to roots growth and turnover.

Keywords: *Opuntia ficus-indica*; SOC; soil analysis

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