

# The **VIIth** International Congress on **Cactus Pear** & **Cochineal**

The **VIIth** General Meeting  
of the **FAO-ICARDA** International  
Technical Cooperation Network  
on Cactus Pear and Cochineal

**Agadir, Morocco**  
**October 17-22, 2010**

**Program**





**Monday 18 October**

**08:00-09:30** Registration

**09:30-11:00** Opening session

• *Chairperson : M. Ahmed BenTouhami / • Reporters : Mohamed Qarro et Mohamed Boujnah*

• *Akka Oulahboub and Ali Nefzaoui*

Welcome note by the Convener of the Congress and FAO-ICARDA Cactus Network General Coordinator

• *Alison Holder, Mohamed El Mourid, Paolo Inglese, Regional Authorities*

Statements of FAO representative, ICARDA representative, ISHS representative, Regional Authorities

• *H.E. The Minister of Agriculture*

Speech of H.E. Minister of Agriculture

Vote of thanks to Dr. Enrique Arias (FAO Officer, Honorary President of the Congress)

• *Mohamed Qarro*

Presentation of the Congress Program

*Importance of cactus crop in Morocco*

• *DDFP/MAPM (Morocco)*

The place of Prickly pear in The Moroccan green Plan of agriculture

• *Karim Anegay and Abderrachid Boutouba*

Prickly pear cactus in Southern Morocco regions – from historical patrimony to technological future

**11:00-11:30** Coffee break

**11:30-13:00** **Session 1: Genetic resources, biology and biotechnology**

• *Chairperson : Dr Enrique Arias / • Reporters : Mohamed Boujghagh, Nejia Zoghلامي*

**11:30-12:00** Keynote paper

• *C. Mondragon-Jacobo and I. Chessa*

A Global Perspective on Genetic Resources of Cactus Pear (*Opuntia spp.*) an Asset for the Future Sustainability of Arid Lands

**12:00-13:00** **Oral presentations**

**12:00-12:15** • *M. C. C. P. de Lyra, D. C. Santos, C. M. Jacobo, M.L.R.B. da Silva and E. Martínez-Romero (Brazil)*

M. characteristics of Opuntias based on internal transcribed spacer sequences (ITS) of Queretaro State, Mexico

**12:15-12:30** • *A. C. L. de Mello, S.L. Paixão, M.de A. Lira, M.V. da Cunha, D.C.dos Santos, J. C.B.D. Júnior, M.V.F dos Santos (Brazil)*

Genetic divergence and evaluation of forage cactus clones in the semi-arid of Pernambuco, Brazil

**12:30-12:45** • *S. Vesperinas, E., de Torres, D., Mauoachi, J., Siverio, A. Carnero, A. & González, M. (Spain)*

Morphological and Anatomic Characterization of *O.-f indica* (L.) Miller ecotypes collection growing in Tenerife (Canary Islands, Spain).

- 12:45-13:00** • *C. Innocenza, Erre P., B. Mario, O. Judith, N. Giovanni (Italy, Argentina)*  
Polymorphic microsatellite DNA markers in *Opuntia* spp
- 13:00-15:00** *Lunch break*
- 15:00-18:30** **Session 1: Genetic resources, biology and biotechnology (ctd.)**
- 15:00-15:15** • *El Madidi S, Berkaqui A., Ben Elmaalem O., Boujghagh M. (Morocco)*  
Analysis of phenotypic and genotypic variability of 30 Moroccan genotypes of cactus pear (*O. ficus indica* Mill)
- 15:15-15:30** • *Erre Patrizia, Chessa Innocenza (Italy)*  
Discriminant analysis of morphological descriptors to differentiate the *Opuntia* genotypes
- 15:30-15:45** • *Gabriela B. Romano (USA)*  
*Opuntia* collection at the national arid land plant genetic resources unit USDA-ARS
- 15:45-16:00** • *M. C. C. P. de Lyra, D. C. Santos, M.L.R.B. da Silva, C. M. Jacobo, EM. Romero*  
M.characterization of cactus pears from Queretaro Mexico based on internal transcribed spacer sequences
- 16:00-16:15** • *C. Mondragon-Jacobo (Mexico)*  
Juanita”, “Virreyna” and “Patriota”, New Cactus Pear Cultivars for the Semiarid Highlands of Central Mexico
- 16:15-16:30** • *S. P. Ortún , J. P Ramón , M. E. Toncovich, Lelia B. Lozano, M. M. Tejerina , M. Alonso (Argentina)*  
Evaluation of growth and ecological adaptation of *Opuntia ficus indica* (L.) Mill. ecotypes in Cerrillos, province of Salta, Argentine
- 16:30-17:00** *Coffee break*
- 17:00-18:00** **Poster session**
- 18:00-18:30** **Discussion Session 1**



## Tuesday 19 October

- 09:00-13:00** **Session 2: Agronomy and Fruit Production**  
• *Chairperson: Dr Abderrahmane Hilali / • Reporters: G. Liguori, Mohamed Arba*
- 09:00-10:00** **Keynote papers**
- 09:00-09:30** • *Inglese, P., Liguori G. (Italy)*  
Growing cactus pear *O. ficus-indica* (L.) Mill. The contribution of the scientific research on plant ecophysiology and biology.
- 09:30-10:00** • *Noemi Tel-Zur (Israel)*  
Pitahayas: introduction, agrotechniques and breeding
- 10:00-13:00** **Oral presentations**

- 10:00-10:15** • *Consoli, S.; Inglese, P.; Inglese, G. (Italy)*  
Determination of Evapotranspiration and Crop Coefficient of Cactus Pear with an Energy Balance Technique
- 10:15-10:30** • *Liguori G., Inglese G., Pernice F., Inglese P. (Italy)*  
CO<sub>2</sub> fluxes of *O.ficus-indica* plants and single cladodes in relation to water stress
- 10:30-11:00** *Coffee break*
- 11:00-11:15** • *Lozano, L.B., R. Palavecino; A. Tálamo; S.P. Ortín (Argentina)*  
The effect of the organic fertilization on green cladodes (*O. f-i* (L) Mill) yield in Lerma's valley, Salta, Argentina. Second Year
- 11:15-11:30** • *M. ARBA and K.Benrachid (Morocco)*  
Effect of irrigation on the rooting of one year old cladodes of cactus pear
- 11:30-11:45** • *HOMRANI BAKALI Abdelmonaim (Morocco)*  
Impact of irrigation cadences on the installation and the production of two forms of prickly pear (Inermis and amyceleae)
- 11:45-12:00** • *Franck, N. , Muñoz, V., Alfaro, F., Arancibia, D., Pastenes, C., and G.de Cortázar, V (Chile)*  
Estimating the carbon balance of growing cactus pear cladodes through different methods
- 12:00-12:15** • *M. de Wit, N. Shongwe, P. Nel, G. Osthoff, M. Labuschagne (S.Africa)*  
The influence of locality, variety and season on cactus pear fruit quality
- 12:15-12:45** **Poster session**
- 12:45-13:30** **Discussion Session 2**
- 13:30-15:00** *Lunch break*
- 15:00-18:30** **Session 3: Medicinal and cosmetic uses**  
• *Chairperson: Dr. Alison Holder / • Reporters: Prof. Lazhar Zorgui, Dr. Moussa Ayoub*
- 15:30-15:30** **Keynote paper**  
• *Mónica A. Nazareno (Argentina)*  
New insights about medicinal uses and health-beneficial properties of cactus products
- Oral presentations**
- 15:30-16:45** • *L.Bousslama, K.Hayashi, J.B. Lee, F. L.Abdelwahid Ghorebel, T.Hayashi (Tunisia, Japan).*  
Virucidal activity of cactus on enveloped viruses
- 15:45-16:00** • *L. Zourgui, D.Brahmi, I. Ayed, Y. Ayed, F.Ellouze, T. Rebai, W. Hassen and H. Bacha (Tunisia)*  
Preventive Role of Cactus (*Opuntia ficus-indica*) Cladodes against the Toxicity of Zearalenone in Balb/C Mice
- 16:00-16:15** • *M. S.Tounsi, I.Ouerghemi, W.Aidi, H.Zemni, F..Leman, B. Marzouk (Tunisia)*  
Changes in phenol composition and antioxidant capacity of Cactus prickly pear seeds lasting ripening

- 16:15-16:30** • *M. Ayoub, T.E., Rohn, S., Abd El-Hady, E., Omran, H., El-Samahy, S., Kroh, L.W. (Germany, Egypt)*  
*O. ficus indica* and *O. macrorhiza*: Promising Sources of Flavonols- Comparison between varieties from different origins
- 16:30-16:45** • *M.Ayoub, T.E. , Rohn, S., Jaeger, H., El-Samahy, S., Knorr, D., Kroh, L.W. (Germany, Egypt)*  
 Impact of traditional and innovative technologies on characteristics and bioactive compounds of *O. macrorhiza* juice
- 16:45-17:30** Coffe break and poster session



## Wednesday 20 October

**Field visit:** Cooperative Sahara Cactus and cactus fields (Sidi Ifni), fruit processing unit and «cactopole» (Ouaaroune, Guelmim)/ Cooperative Wahat Tighmert (oasis Tighmert, Guelmim)

**Meeting of the International Committee of the FAO-ICARDA Technical Cooperation Network on Cactus Pear and Cochineal**



## Thursday 21 October

- 09:00-13:00** **Session 4: Post-harvest and agro-industries**  
 • *Chairperson: Dr. H.O. de Waal / • Reporters: DR. Hasna Harrak, M. De Wit*
- Keynote paper**
- 09:00-09:30** • *Carmen Sáenz (Chile)*  
 A glance about the industrial possibilities of cactus pear
- Oral presentations**
- 09:30-09:45** • *Abraján-Villaseñor, M.A, Martínez-Navarrete, N. Chiralt, A. (Mexico, Spain)*  
 Tensile properties and water vapour permeability of edible film made of the mucilage gum obtained from *O.ficus indica* containing oleic or stearic acid
- 09:45-10:00** • *Hasnaâ Harrak et Fatiha Jaouan (Morocco)*  
 Technological, Organoleptic and Nutritional Qualities of Cladodes Powder of Cactus (*Opuntia ficus indica*)
- 10:00-10:15** • *M.Marzorati , Possemiers , M.Malainine (Belgium, Morocco)*  
 Cactusline100, a new *Opuntia ficus indica* fat – binding extract
- 10:15-10:30** • *Mohammed Boujnah (Morocco)*  
 Development of processed products from cladodes in Morocco
- 10:30-11:30** *Coffee break and Poster session*
- 11:30-12:00** **Discussion Session 4**

**12:00-18:30** **Session 5: Animal feeding**

• *Chairperson: Dr. José Dubeux / • Reporters: Dr. El Mostapha Aderdor; Jesus Fuentes*

**Keynote paper**

**12:00-12:30** • *Hichem Ben Salem and Ali Nefzaoui (Tunisia, ICARDA)*

Cactus holds promises as a tool to improve the productivity and sustainability of livestock-based production systems under the climate change context

**Oral presentations**

**12:30-12:45** • *A.M. Batista, A. Guim and J. Costa, P.C. Soares (Brazil)*

Effect of Replacement of Cactus (*O. F. Indica* Mill) by Tifton Hay on Water Intake and Renal Function of Goats

**12:45-13:00** • *S.J. Andrade, R.B. Lucena, J.S. Leite, R.X. Andrade, F. Carvalho, A.M. Batista*

Performance of lambs receiving fresh or dehydrated cactus .

**13:00-15:00** *Lunch break*

**12:00-18:30** **Session 5: Animal feeding (ctd. 1)**

**15:00-15:15** • *Mohamed Arba (Morocco)*

Nutritive value of cactus pear for cattle in south of Morocco

**15:15-15:30** • *A. Aithamou (Morocco)*

Cactus, a Forage for Camel

**15:30-15:45** • *Bendaou. M (Morocco)*

Use of cactus (*O.f-i*) rejects silage in sheep feeding: nutritive value and carcass parameters

**15:45-16:00** • *A. Araba, A. El Aich, B. Sarti (Morocco)*

Effects of graded levels of prickly pears cactus pads on lambs and sheep performance

**16:00-16:15** • *Araba, Boutouba, Salhi, Anegway, Youssoufi, Mouncif (Morocco)*

Possibility of using discarded prickly pears cactus fruits as a feed for ruminants

**16:15-16:30** • *S. Abidi, H.B. Salem, Ali Nefzaoui, V. Vasta, A. Priolo (Tunisia, ICARDA, Italy)*

Silage composed of *Opuntia ficus indica* f. *inermis* cladodes, olive cake and wheat bran as alternative feed for Barbarine lambs

**16:30-16:45** • *C.M.D. da C. Menezes, L.M.J. Schwalbach, H.O. de Waall & W.J. Combrinck (South Africa)*

Effects of sun-dried cactus pear (*O. f.i*) cladodes on feed and water intake and excretion of urine and faeces by Dorper wether sheep

**16:45-17:30** *Coffee break*

**Session 5: Animal feeding (ctd. 2)**

**17:30-17:45** • *K.L. Shiningavamwe, H.O. de Waal, L. Schwalbach, W. Combrinck, J. Els (S. Africa)*

Commercialisation of sun-dried cactus pear (*Opuntia ficus-indica*) cladodes in feedlot diets for Dorper wether lambs

**17:45-18:00** • *H J Fouché, G M Engelbrecht (South Africa)*

The potential of cactus pear (*Opuntia ficus-indica*) as animal feed

Poster session

18:00-18:45 Discussion Session 5

20:30 Official dinner



## Friday October 22

09:00-12:00 **Session 6: Cochineal and pests and diseases**

• *Chairperson: Dr. Enrique Lobos / • Reporters: L.R. Borges, C. K. Chavez-Moreno*

**Keynote paper**

09:00-09:30 • *Liberato Portillo (Mexico)*

Recent findings on cochineal: toward the integration of its knowledge

**Oral presentations**

09:30-09:45 • *Enrique Lobos, Maria Judith Ochoa (Argentina)*

Control tactics of *Cactoblastis cactorum* Berg, for the protection of the cactus pear *Opuntia indica* L. Mill.

09:45-10:00 • *L.R. Borges, D.C. Santos, E.W.F. Gomes, H.M. Falcão, V.A.L.BCavalcanti D.M.P. da Silva (Brazil)*

Selection of prickly-pear clones regarding resistance to carmine cochineal *Dactylopius opuntiae*

10:00-10:15 • *C. K. Chavez-Moreno A. Tecante A. Casas (Mexico)*

The *Opuntia* and *Dactylopius* in Mexico: a historical perspective of use, interaction and distribution ...

10:15-10:30 • *L.R. Borges, D.C. Santos, E.W.F. Gomes, H.M. Falcão, V.A.L.Cavalcanti, I.M.M. Silva and D.M.P. da Silva (Brazil)*

Use of biodegradable products for the control of *Dactylopius opuntiae* (Hemiptera: Dactylopiidae) in prickly-pear

10:30-10:45 • *V-Benavidez, M.González, J.A, Palacios-Cedano, A, Cayo, L, Viguera, A. L.*

Forage cactus pear species resistant to *Dactylopius opuntiae cockerell*

10:45-11:00 • *G. R- De la Torre, A. M-Avilés, E. E-Huerta, M.G-Chavira, C. M-Jacobo (Mexico)*

A Preliminary Protocol to Propagate True-to-type and Cladode Swelling Disease-free Cactus Pear Stock Plants

11:00-11:30 *Coffee break*

11:30-12:00 **Poster session 6**

12:00-12:30 Discussion sessions 6

12:30-14:30 *Lunch break*

Meeting of the International Committee of the FAO-ICARDA Technical Cooperation Network on Cactus Pear and Cochineal

14:30-15:30 Closing session

16:00 Departure to Marrakech (Post Congress Tour)