PPR in Libya

Zakaria Alkhatal
Libyan CVO, Director General (NCAH)

Abdunaser Dayhum and Ibrahim Eldaghayes
Scientific Advisors (NCAH)
Libya
An epidemiological study on Peste des petits ruminants in Tripoli Region, Libya

Mohamed Dakil Almeshay\textsuperscript{1,2}, Abubaker Gusbi\textsuperscript{1}, Ibrahim Eldaghayes\textsuperscript{1}, Riadh Mansouri\textsuperscript{3}, Mohammed Bengoumi\textsuperscript{3} and Abdunaser S. Dayhum\textsuperscript{1*}

\textsuperscript{1}Faculty of Veterinary Medicine, University of Tripoli, Tripoli, Libya.
\textsuperscript{2}Office of Environmental Sanitation, Tripoli, Libya.
\textsuperscript{3}FAO Subregional Office for North Africa, Tunis, Tunisia.

\textsuperscript{*}Corresponding author at: Department of Preventive Medicine, Faculty of Veterinary Medicine, University of Tripoli, P.O. Box 13662, Tripoli, Libya.
Tel.: +218 91 763 3383, e-mail: a.dayhum@uot.edu.ly, a.dayhum@yahoo.com.

Accepted: 08.09.2016 | Available on line: 29.09.2017
Sero-prevalence and epidemiology of peste des petits ruminants in Libya

A. Dayhum 1 | M. Shari 2 | I. Eldaghayes 1 | A. Kammon 1 | P. Calisti 3 | M. L. Danzetta 3 | D. Di Sabatino 3 | A. Petrini 4 | G. Ferrari 4 | S. Grazioli 5 | G. Pezzi 5 | E. Brocchi 5

1Faculty of Veterinary Medicine, University of Tripoli, Tripoli, Libya
2Faculty of Veterinary Medicine, University of Omar Al Mukhtar, Albeida, Libya
3Istituto Zooprofilattico Sperimentale dell’Abruzzo e del Molise “G. Caporale”, Teramo, Italy
4Food and Agriculture Organization of the United Nations (FAO), Rome, Italy
5Istituto Zooprofilattico Sperimentale della Lombardia e dell’Emilia Romagna (IZSLER), Brescia, Italy

Collaboration with Italy

Received: 7 March 2017
DOI: 10.1111/tbed.12670

Summary

We conducted a cross-sectional study during 2013 to quantify the serological prevalence of peste des petits ruminants (PPR) infection and to investigate host factors associated with PPR infection in small ruminants in Libya. A two-stage sampling design was carried out. A total number of 148 flocks owning at least 100 heads each were randomly selected. Sixteen to forty-eight samples were collected from each selected flock. A total number of 3,508 serum samples from unvaccinated animals were collected and analysed at IZSLER Brescia, Italy, by using competitive ELISA, IDvet innovative diagnostics (IDvet 310, France). The overall serological prevalence among SR was 33% (95% CI: 31.4–34.5). Significant differences between the prevalence in the geographical branches were observed. The lowest prevalence level was observed in Zawiyah branch (16.1%), whereas the highest value was obtained for the Sabha branch (56.8%). Considering the age, a serological prevalence of 24.7%, 31.5% and 42.1% was observed in SR <1 year, between 1 and 2 years and more than 2 years, respectively. Statistically significant differences (p < .001) in the sero-prevalence levels were also observed between the age groups. Our findings suggest that the southern part of Libya could be more exposed to the infections coming from the neighbouring countries and this should be better investigated to correctly identify wherever specific entry points can be considered at higher risk than others. The results also confirmed the endemic status of PPR in Libya, with a constant exposure to the infection of the animals during their life. In the framework of the global strategy for control and eradication of PPR, our results, even if obtained by a preliminary study, can contribute to the assessment of the epidemiological situation of PPR in Libya as required by the Stage 1 of the plan.

KEYWORDS
Libya, peste des petits ruminants, risk factors, sero-prevalence, small ruminants
The survey of PPR in Libya

<table>
<thead>
<tr>
<th>Year</th>
<th>Age Group</th>
<th># Samples</th>
<th># +ve</th>
<th>Proportion</th>
<th>Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>6 - 12 M</td>
<td>1001</td>
<td>247</td>
<td>38 cities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13 - 24 M</td>
<td>1375</td>
<td>433</td>
<td>31.5 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 24 M</td>
<td>1132</td>
<td>475</td>
<td>42 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>3508</td>
<td>1156</td>
<td>33 %</td>
</tr>
<tr>
<td></td>
<td>2013 Tripoli</td>
<td>6 - 12 M</td>
<td>256</td>
<td>115</td>
<td>45 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13 - 24 M</td>
<td>272</td>
<td>135</td>
<td>50 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 24 M</td>
<td>193</td>
<td>87</td>
<td>45 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>721</td>
<td>337</td>
<td>47 %</td>
</tr>
<tr>
<td></td>
<td>2015-2016</td>
<td>6 - 23 M</td>
<td>131</td>
<td>31</td>
<td>24 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 23 M</td>
<td>451</td>
<td>185</td>
<td>41 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>582</td>
<td>216</td>
<td>37 %</td>
</tr>
</tbody>
</table>
Sero-prevalence and epidemiology of peste des petits ruminants in Libya (2003)
Cont.
2015 – 2016 PPR survey
PPR Outbreak

East

- 2013: 3
- 2014: 3
- 2015: 2
- 2016: 2

Middel

- 2013: 2
- 2015: 2
- 2017: 3

South

- 2013: 3
- 2015: 2

West

- 2013: 27
- 2014: 3
- 2015: 1
- 2017: 2
The Monthly PPR Outbreaks
PPR Outbreaks by City
Special thanks to

• IZSLER - Brescia, IZSAM – Teramo and Ministry of Health (Italian Government)

• FAO

• OIE

• REMESA