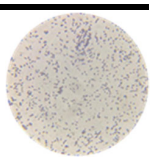
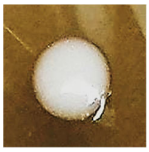
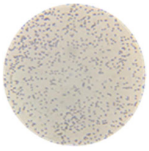
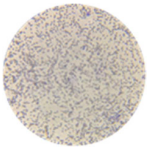
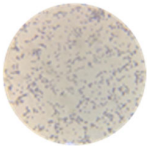
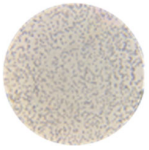
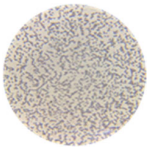
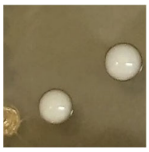
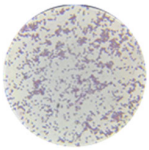
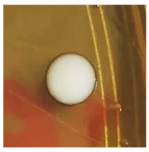
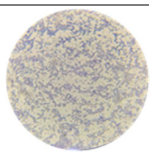
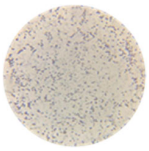
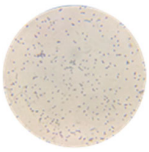
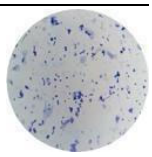
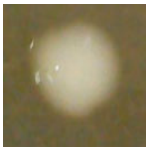
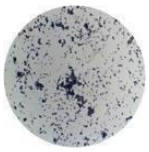
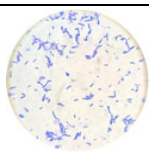
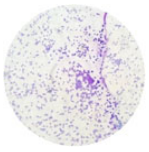
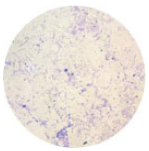
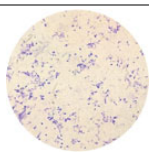
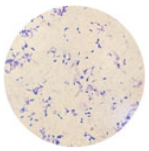
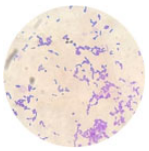
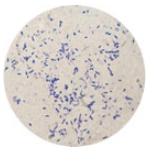
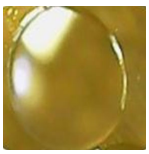
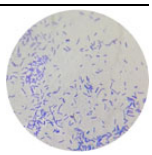
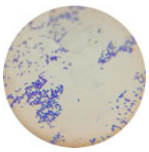
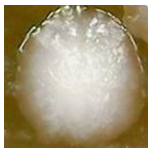
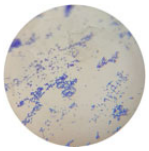
**Table S1.** Phenotypic characterization of isolates from the must of mezcal in four *palenques* in Oaxaca, Mexico.

+: Gram positive, -: Gram negative

| Strain | | Colonial morphology (1cm) | Gram (100X) |
|---|---|---|---|
| P1OAXL1 | *Lactiplantibacillus pentosus* |  |  + |
| P1OAXL2 | *Lactiplantibacillus pentosus* |  |  + |
| P1OAXL3 | *Lactiplantibacillus plantarum* |  |  + |
| P1OAXL4 | *Lactiplantibacillus pentosus* |  |  + |
| P1OAXL5 | *Lactiplantibacillus plantarum* |  |  + |
| P1OAXL6 | *Lactiplantibacillus plantarum sub. Argentoratensis* |  |  + |
| P1OAXL7 | *Lactiplantibacillus plantarum* |  |  + |

| | | | | |
|---|---|---|---|---|
| P1OAXL8 | *Lactiplantibacillus plantarum* |  |  | + |
| P1OAXL9 | *Lactiplantibacillus pentosus* |  |  | + |
| P1OAXL10 | *Bacillus pumilus* |  |  | + |
| P2OAXL11 | *Bacillus amyloliquefaciens* |  |  | + |
| P2OAXL14 | *Enterococcus faecalis* |  |  | + |
| P3OAXL15 | *Lactiplantibacillus* sp. |  |  | + |
| P3OAXL16 | *Staphylococcus* sp. |  |  | + |
| P3OAXL17 | *Enterococcus faecalis* |  |  | + |

| | | | | |
|---|---|---|---|---|
| P3OAXL18 | *Bacillus amyloliquefaciens* |  |  | + |
| P3OAXL19 | *Lactiplantibacillus plantarum* |  |  | + |
| P3OAXL20 | *Lactiplantibacillus plantarum* |  |  | + |
| P3OAXL21 | *Bacillus amyloliquefaciens* |  |  | + |
| P4OAXL61 | *Enterobacter sichuanensis* |  |  | - |
| P4OAXL62 | *Enterobacter* sp. |  |  | - |
| P4OAXL64 | *Lacticaseibacillus* sp. |  |  | + |
| P4OAXL65 | *Lactiplantibacillus diolivorans* |  |  | + |

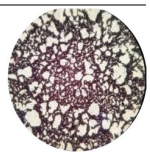
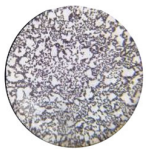
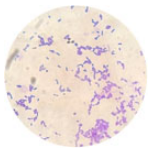
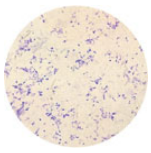
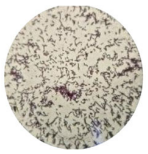
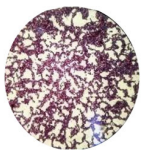
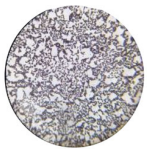
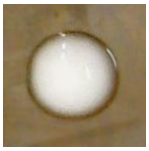
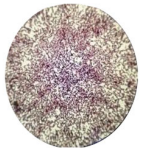
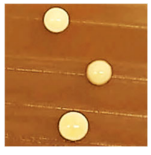
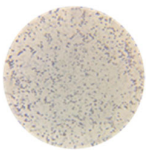
| | | | | |
|---|---|---|---|---|
| P4OAXL66 | *Enterobacter* sp. |  |  | - |
| P4OAXL11 | *Bacillus sp.* |  |  | + |
| P4OAXL22 | *Lactiplantibacillus plantarum* |  |  | + |
| P4OAXL24 | *Leuconostoc mesenteroides* |  |  | + |
| P4OAXL25 | *Bacillus amyloliquefaciens* |  |  | + |
| P4OAXL26 | *Lactiplantibacillus plantarum* |  |  | + |
| P4OAXL27 | *Bacillus* sp. |  |  | + |
| P4OAXL28 | *Levillactobacillus brevis* |  |  | + |
| P4OAXL29 | *Enterococcus gallinarum* |  |  | + |

**Table S2.** Frequency and distribution of lactic acid bacteria strains isolated from four palenque fermentation samples from Oaxaca, Mexico.

| *ID* | *Strain / Taxonomic Identification* | *Palenque 1* | *Palenque 2* | *Palenque 3* | *Palenque 4* | *Absolute Frequency (n)* |
|---|---|---|---|---|---|---|
| *1* | *Bacillus amyloliquefaciens* | ***1*** | *0* | *2* | ***1*** | *4* |
| *2* | *Bacillus pumilus* | ***1*** | *0* | *0* | *0* | *1* |
| *3* | *Enterobacter sichuanensis* | *0* | *0* | *0* | ***1*** | *1* |
| *4* | *Enterococcus faecalis* | *0* | ***1*** | ***1*** | *0* | *2* |
| *5* | *Enterococcus gallinarum* | *0* | *0* | *0* | ***1*** | *1* |
| *6* | *Lactiplantibacillus diolivorans* | *0* | *0* | *0* | ***1*** | *1* |
| *7* | *Lactiplantibacillus pentosus* | ***4*** | *0* | *0* | *0* | *4* |
| *8* | *Lactiplantibacillus plantarum* | ***4*** | *0* | ***2*** | ***2*** | *8* |
| *9* | *Lactiplantibacillus plantarum subsp. argentoratensis* | ***1*** | *0* | *0* | *0* | *1* |
| *10* | *Leuconostoc mesenteroides* | *0* | *0* | *0* | ***1*** | *1* |
| *11* | *Levillactobacillus brevis* | *0* | *0* | *0* | ***1*** | *1* |
| | *Total Strains per Sample* | ***10*** | ***2*** | ***5*** | ***8*** | ***25*** |

Numerical values indicate the number of isolated strains for each taxonomic group in each palenque sample. A zero (0) suggests that the strain was not isolated from that sample.