**TABLE S1. Phenotypic and chemotaxonomic characterization of actinobacterial strains recovered from diorite rocks.**

<table>
<thead>
<tr>
<th>Character</th>
<th>Streptomyces</th>
<th>Nocardoides</th>
<th>Kitasatospora</th>
<th>Nocardopsis</th>
<th>Micromonospora</th>
<th>Actinomadura</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of strains (Total 34)</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td><strong>Macromorphology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Substrate mycelium color</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cream</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Yellow</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Violet</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Olive</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Brown</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Orange</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Red</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Aerial mycelium color</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>White-gray</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cream</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yellow</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Olive</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pink</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Gray</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Green</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Brown</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Substrate mycelium pigments on ISP4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reddish brown</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Brown</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yellow</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Micromorphology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Substrate mycelium sporulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fragmentation</td>
<td>2</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Single spore</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Flexibles spore chain</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sporangia formation</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Vesicles</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Aerial mycelium sporulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fragmentation</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Flexibles spore chain</td>
<td>2</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Rectiflexibles spore chain</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Open spirals</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Compact spirals</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sporangia formation</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Chemotaxonomy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diaminopimelic acid (DAP)isomer in whole cell hydrolysate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-DAP</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>m-DAP</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Whole cell diagnostic Sugar pattern</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xylose</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Arabinose</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Galactose</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Madurose</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Rhamnose</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mannose</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Mycolic acid(MA)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA presence</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

_Egypt. J. Bot. 58, No. 3 (2018)_.

---

**Notes:**
- The table describes the isolation and antibiotic prospective of endolithically grown actinobacterial strains recovered from diorite rocks.
- Each row represents a character or property to which the strains were subjected, and the results are tabulated accordingly.
- The table includes the following categories: **Macromorphology**, **Micromorphology**, **Chemotaxonomy**, and **Whole cell diagnostic Sugar pattern**.
- **No. of strains** column indicates the total number of strains recovered, with the number of strains for each character or property listed below.
- **Macromorphology** includes details about the color of the substrate mycelium and aerial mycelium, as well as pigments on ISP4.
- **Micromorphology** focuses on sporulation and morphological traits of the mycelium.
- **Chemotaxonomy** provides information on the presence of certain acid isomers in the whole cell hydrolysate, along with mycolic acid (MA) presence.
- **Whole cell diagnostic Sugar pattern** lists the presence or absence of specific sugars in the cell wall.
**TABLE S2. Mass fingerprint data of *Micromonospora citrea* EMCC 1923 metabolic extract.**

<table>
<thead>
<tr>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
<th>Mass (Da)</th>
<th>Intensity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>106.3</td>
<td>&lt;10</td>
<td>156.1</td>
<td>&lt;10</td>
<td>203.1</td>
<td>&lt;10</td>
<td>256.2</td>
<td>&lt;10</td>
<td>377.9</td>
<td>30</td>
<td>448.5</td>
<td>32</td>
<td>693.6</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112.4</td>
<td>&lt;10</td>
<td>157.2</td>
<td>&lt;10</td>
<td>204.2</td>
<td>&lt;10</td>
<td>258.4</td>
<td>23</td>
<td>379.1</td>
<td>90</td>
<td>449.5</td>
<td>&lt;10</td>
<td>694.7</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>113.4</td>
<td>&lt;10</td>
<td>158.3</td>
<td>&lt;10</td>
<td>205.2</td>
<td>&lt;10</td>
<td>260.8</td>
<td>&lt;10</td>
<td>380.1</td>
<td>50</td>
<td>450.8</td>
<td>25</td>
<td>708.7</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>115.5</td>
<td>&lt;10</td>
<td>159.4</td>
<td>&lt;10</td>
<td>206.2</td>
<td>&lt;10</td>
<td>265.1</td>
<td>21</td>
<td>381.3</td>
<td>&lt;10</td>
<td>453.1</td>
<td>22</td>
<td>712.0</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>116.5</td>
<td>&lt;10</td>
<td>162.4</td>
<td>&lt;10</td>
<td>208.4</td>
<td>&lt;10</td>
<td>266.1</td>
<td>&lt;10</td>
<td>382.4</td>
<td>&lt;10</td>
<td>454.1</td>
<td>&lt;10</td>
<td>724.9</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>118.5</td>
<td>&lt;10</td>
<td>169.9</td>
<td>&lt;10</td>
<td>212.7</td>
<td>96</td>
<td>268.3</td>
<td>55</td>
<td>383.4</td>
<td>&lt;10</td>
<td>471.1</td>
<td>13</td>
<td>726.0</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>122.6</td>
<td>&lt;10</td>
<td>170.9</td>
<td>&lt;10</td>
<td>213.7</td>
<td>48</td>
<td>269.4</td>
<td>&lt;10</td>
<td>384.5</td>
<td>&lt;10</td>
<td>473.5</td>
<td>&lt;10</td>
<td>743.3</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>125.8</td>
<td>52</td>
<td>172.1</td>
<td>86</td>
<td>215.0</td>
<td>48</td>
<td>270.4</td>
<td>&lt;10</td>
<td>385.6</td>
<td>&lt;10</td>
<td>489.3</td>
<td>11</td>
<td>745.5</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>126.9</td>
<td>&lt;10</td>
<td>173.1</td>
<td>&lt;10</td>
<td>216.1</td>
<td>&lt;10</td>
<td>278.4</td>
<td>&lt;10</td>
<td>386.7</td>
<td>38</td>
<td>491.5</td>
<td>&lt;10</td>
<td>749.1</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>127.9</td>
<td>&lt;10</td>
<td>174.1</td>
<td>&lt;10</td>
<td>219.2</td>
<td>92</td>
<td>279.4</td>
<td>23</td>
<td>402.5</td>
<td>&lt;10</td>
<td>517.7</td>
<td>&lt;10</td>
<td>752.4</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>130.0</td>
<td>&lt;10</td>
<td>178.4</td>
<td>&lt;10</td>
<td>220.2</td>
<td>&lt;10</td>
<td>285.9</td>
<td>&lt;10</td>
<td>403.6</td>
<td>40</td>
<td>523.5</td>
<td>22</td>
<td>759.5</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>131.0</td>
<td>&lt;10</td>
<td>180.6</td>
<td>&lt;10</td>
<td>221.4</td>
<td>&lt;10</td>
<td>286.9</td>
<td>&lt;10</td>
<td>404.6</td>
<td>15</td>
<td>524.5</td>
<td>&lt;10</td>
<td>775.7</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>132.1</td>
<td>78</td>
<td>182.8</td>
<td>&lt;10</td>
<td>223.5</td>
<td>&lt;10</td>
<td>295.9</td>
<td>&lt;10</td>
<td>405.8</td>
<td>&lt;10</td>
<td>541.6</td>
<td>&lt;10</td>
<td>776.7</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>133.1</td>
<td>&lt;10</td>
<td>188.1</td>
<td>&lt;10</td>
<td>228.8</td>
<td>&lt;10</td>
<td>309.2</td>
<td>15</td>
<td>416.1</td>
<td>&lt;10</td>
<td>573.6</td>
<td>36</td>
<td>794.1</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>139.3</td>
<td>&lt;10</td>
<td>189.1</td>
<td>&lt;10</td>
<td>229.1</td>
<td>&lt;10</td>
<td>310.2</td>
<td>&lt;10</td>
<td>417.2</td>
<td>26</td>
<td>574.6</td>
<td>&lt;10</td>
<td>795.2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>141.5</td>
<td>&lt;10</td>
<td>190.2</td>
<td>&lt;10</td>
<td>230.2</td>
<td>65</td>
<td>313.4</td>
<td>&lt;10</td>
<td>418.4</td>
<td>&lt;10</td>
<td>591.8</td>
<td>11</td>
<td>810.8</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>144.7</td>
<td>93</td>
<td>191.2</td>
<td>&lt;10</td>
<td>231.2</td>
<td>&lt;10</td>
<td>322.3</td>
<td>23</td>
<td>419.4</td>
<td>&lt;10</td>
<td>592.8</td>
<td>&lt;10</td>
<td>826.5</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>145.7</td>
<td>&lt;10</td>
<td>194.5</td>
<td>&lt;10</td>
<td>232.3</td>
<td>&lt;10</td>
<td>326.8</td>
<td>&lt;10</td>
<td>420.5</td>
<td>&lt;10</td>
<td>623.8</td>
<td>38</td>
<td>827.6</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>146.7</td>
<td>55</td>
<td>195.7</td>
<td>100</td>
<td>236.5</td>
<td>75</td>
<td>330.1</td>
<td>33</td>
<td>421.6</td>
<td>14</td>
<td>626.1</td>
<td>&lt;10</td>
<td>845.1</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>149.8</td>
<td>27</td>
<td>196.6</td>
<td>&lt;10</td>
<td>237.6</td>
<td>&lt;10</td>
<td>331.1</td>
<td>&lt;10</td>
<td>428.3</td>
<td>&lt;10</td>
<td>642.1</td>
<td>11</td>
<td>877.5</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150.9</td>
<td>&lt;10</td>
<td>197.6</td>
<td>20</td>
<td>238.7</td>
<td>&lt;10</td>
<td>339.1</td>
<td>&lt;10</td>
<td>429.4</td>
<td>&lt;10</td>
<td>658.2</td>
<td>&lt;10</td>
<td>878.6</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>153.0</td>
<td>88</td>
<td>198.7</td>
<td>&lt;10</td>
<td>243.3</td>
<td>&lt;10</td>
<td>340.1</td>
<td>&lt;10</td>
<td>434.1</td>
<td>&lt;10</td>
<td>674.3</td>
<td>44</td>
<td>896.1</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>154.0</td>
<td>&lt;10</td>
<td>199.8</td>
<td>&lt;10</td>
<td>245.5</td>
<td>&lt;10</td>
<td>354.4</td>
<td>12</td>
<td>435.2</td>
<td>&lt;10</td>
<td>675.4</td>
<td>&lt;10</td>
<td>928.6</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>155.1</td>
<td>35</td>
<td>201.0</td>
<td>&lt;10</td>
<td>254.0</td>
<td>45</td>
<td>360.1</td>
<td>&lt;10</td>
<td>436.4</td>
<td>&lt;10</td>
<td>676.5</td>
<td>&lt;10</td>
<td>1031.4</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>156.0</td>
<td>&lt;10</td>
<td>202.0</td>
<td>&lt;10</td>
<td>255.1</td>
<td>&lt;10</td>
<td>366.7</td>
<td>&lt;10</td>
<td>446.3</td>
<td>&lt;10</td>
<td>692.6</td>
<td>18</td>
<td>1134.1</td>
<td>&lt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>