Fetiasite  
\[(\text{Fe}^{2+}, \text{Fe}^{3+}, \text{Ti})_3\text{O}_2(\text{As}_2\text{O}_5)\]

**Crystal Data:** Monoclinic. **Point Group:** 2/m. Crystals are tabular on \{100\}, elongated along [010] or [001], showing \{100\}, \{011\}, \{001\}, to 2 cm; in radial to globular aggregates.

**Physical Properties:** Cleavage: \{100\}, perfect. Fracture: Uneven to conchoidal. Hardness = ~5 VHN = 438–490 (50 g load). D(meas.) = 4.6(1) on altered material. D(calc.) = 4.74–4.80

**Optical Properties:** Opaque. **Color:** Brown to black, red-brown when altered; creamy white in reflected light. **Luster:** Metallic to semimetallic. **Optical Class:** Biaxial. **Anisotropism:** Noted. 

**Cell Data:** Space Group: P2₁/m. 
a = 10.595–10.616  
b = 3.242–3.252  
c = 8.931–8.945  
β = 108.89°–108.95°  
Z = 2

**X-ray Powder Pattern:** Pizzo Cervandone, Italy. 
2.749 (100), 2.811 (94), 2.391 (85), 2.985 (67), 1.779 (48), 1.709 (35), 1.754 (32)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TiO₂</td>
<td>10.09</td>
<td>11.17</td>
</tr>
<tr>
<td>Fe₂O₃</td>
<td>17.13</td>
<td>17.93</td>
</tr>
<tr>
<td>As₂O₃</td>
<td>46.95</td>
<td>46.76</td>
</tr>
<tr>
<td>FeO</td>
<td>23.12</td>
<td>24.23</td>
</tr>
<tr>
<td>MnO</td>
<td>1.25</td>
<td>0.89</td>
</tr>
</tbody>
</table>

Total 98.54 100.98

(1) Pizzo Cervandone, Italy; by electron microprobe, average of seven analyses; Fe²⁺:Fe³⁺ from crystal-structure analysis, total Mn as MnO, As³⁺ confirmed by IR; corresponding to \((\text{Fe}^{2+}_{1.38} \text{Fe}^{3+}_{0.92} \text{Ti}_{0.54} \text{Mn}_{0.08})_2 \text{O}_2(\text{As}_2\text{O}_5)\). (2) Binntal, Switzerland; by electron microprobe, average of ten analyses; corresponding to \((\text{Fe}^{2+}_{1.40} \text{Fe}^{3+}_{0.93} \text{Ti}_{0.58} \text{Mn}_{0.05})_2 \text{O}_2(\text{As}_2\text{O}_5)\).

**Occurrence:** Deposited from arsenic-bearing solutions in Alpine fissures in gneisses of the upper greenschist to lower amphibolite facies.

**Association:** Asbecasite, cafarsite, cervandonite, anatase, chlorite, feldspar, mica, quartz.

**Distribution:** On the east flank of Pizzo Cervandone, Alpe Devero, Val d’Aosta, Piedmont, Italy. At Gorb, Binntal, Valais, Switzerland.

**Name:** For Fe, Ti, As in its composition.

**Type Material:** Natural History Museum, Basel; Mineralogical Institute, University of Basel, Switzerland.