Pauloabibite $NaNbO_3$

Crystal Data: Hexagonal. *Point Group*: $\bar{3}$. As encrustations of platy crystals, to 2 mm.

Physical Properties: *Cleavage*: Perfect on {001}. *Fracture*: n.d. *Tenacity*: n.d.
Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.246

Optical Properties: Transparent. *Color*: Pinkish brown. *Streak*: White.
Luster: Sub-adamantine.
Optical Class: Uniaxial. *n*(calc.) = 2.078

Cell Data: Space Group: $R\bar{3}$. a = 5.3287(5) c = 15.6197(17) Z = 6

X-ray Powder Pattern: Jacupiranga carbonatite, Cajati, São Paulo, Brazil.
5.2066 (100), 2.3718 (88), 4.4257 (82), 2.9809 (54), 1.8620 (53), 3.9730 (45), 1.5383 (30)

Chemistry:	(1)	(2)
Na_2O	16.36	18.91
MgO	0.04	
CaO	1.36	
MnO	0.82	
FeO	0.11	
SrO	0.02	
BaO	0.16	
SiO_2	0.03	
TiO_2	0.86	
Nb_2O_5	78.66	81.09
Ta_2O_5	0.34	.
Total	98.76	100.00

(1) Jacupiranga carbonatite, Cajati, São Paulo, Brazil; average of 17 electron microprobe analyses; corresponds to $(Na_{0.88}Ca_{0.04}Mn^{2+}_{0.02})_{\Sigma=0.94}(Nb_{0.98}Ti_{0.02})_{\Sigma=1.00}O_3$. (2) $NaNbO_3$.

Polymorphism & Series: Polymorphous with isolueshite and lueshite.

Occurrence: In carbonatite associated with an alkaline igneous complex.

Association: Dolomite, calcite, magnetite, phlogopite, pyrite, pyrrhotite, ancylite-(Ce), tochilinite, fluorapatite, 'pyrochlore', vigezzite, strontianite.

Distribution: From the Jacupiranga carbonatite, Cajati, São Paulo, Brazil.

Name: Honors Paulo Abib Andery (1922-1976), Department of Mining Engineering, Polytechnic School, University of São Paulo, Brazil, who developed flotation processes for Serrana SA Mining and founded the Paulo Abib Engenharia mining research facility.

Type Material: Geosciences Museum, University of São Paulo, Brazil (DR740).

References: (1) Menezes Filho, L.A.D., D. Atencio, M.B. Andrade, R.T. Downs, M.L.S.C. Chaves, A.W. Romano, R. Scholz, and A.I.C. Persiano (2015) Pauloabibite, trigonal $NaNbO_3$, isostructural with ilmenite, from the Jacupiranga carbonatite, Cajati, São Paulo, Brazil. Amer. Mineral., 100, 442-446.