Bukovskýite $Fe_2^{3+}(AsO_4)(SO_4)(OH)\cdot 7H_2O$

Crystal Data: Triclinic. *Point Group:* $\overline{1}$ or 1. Crystals, needlelike, elongated along [011], to 0.5 mm, showing {0*kl*} forms, terminated by {100} and {30$\overline{2}$}, may be in radial groups; generally in aggregates, forming nodules.

Physical Properties: *Cleavage:* On {010}, imperfect. *Fracture:* Uneven, earthy. *Tenacity:* Flexible in crystals. Hardness = Soft. D(meas.) = 2.334 D(calc.) = 2.336

Optical Properties: Semitransparent. *Color:* Yellowish green to grayish green. *Streak:* Pale yellowish.
Optical Class: Biaxial; birefringence 0.049–0.056. *Orientation:* Extinction angle = 22°.
α = n.d. β = 1.570–1.582 (β') γ = 1.626–1.631 (γ') 2V(meas.) = n.d.

Cell Data: *Space Group:* $P\overline{1}$ or $P1$. $a = 10.722(5)$ $b = 14.079(5)$ $c = 10.284(5)$
$\alpha = 93.50(4)°$ $\beta = 115.96(4)°$ $\gamma = 90.27(4)°$ Z = 4

X-ray Powder Pattern: Kaňk, Czech Republic.
9.197 (100), 8.884 (60), 9.625 (43), 3.077 (36), 3.920 (35), 2.458 (23), 5.338 (20)

Chemistry:

	(1)	(2)
SO_3	16.50	16.35
As_2O_5	22.10	23.46
Fe_2O_3	32.42	32.60
H_2O	28.12	27.59
Total	[99.14]	100.00

(1) Kaňk, Czech Republic; original total given as 99.32%, presence of AsO_4, SO_4, and $(OH)^{1-}$ confirmed by IR; assuming H_2O^- 0.69%, corresponds to $Fe_{2.00}(AsO_4)_{0.95}(SO_4)_{1.02}(OH)_{1.00}\cdot 7H_2O$.
(2) $Fe_2(AsO_4)(SO_4)(OH)\cdot 7H_2O$.

Occurrence: A post-mining surficial weathering product of Fe–As sulfides.

Association: Arsenopyrite, pyrite, quartz.

Distribution: Found in dumps of the Kuntery and other mines, Kaňk, 2.5 km north of Kutná Hora, Czech Republic.

Name: To honor Antonín Bukovský (1865–1950), Professor at the secondary school of Kutná Hora, Czech Republic, who first analyzed the mineral.

Type Material: Charles University, 14240; National Museum, Prague, Czech Republic, 53411.

References: (1) Novák, F, P. Povondra, and J. Vtělenský (1967) Bukovskýite, $Fe_2^{3+}(AsO_4)(SO_4)(OH)\cdot 7H_2O$, from Kaňk, near Kutná Hora – a new mineral. Acta Univ. Carolinae, Geol., 4, 297–325. (2) (1969) Amer. Mineral., 54, 576–577 (abs. ref. 1). (3) (1969) Amer. Mineral., 54, 991 (abs. ref. 1). (4) Johan, Z. (1986) Crystal symmetry and unit-cell of bukovskyite, $Fe_2^{3+}(AsO_4)(SO_4)(OH)\cdot 7H_2O$. Neues Jahrb. Mineral., Monatsh., 445–451.