

ester of iminopyrazine-2-carboxylic acid (2.6 g, 0.025 mol), prepared *in situ* from 2-cyanopyrazine and sodium metal (stirred at room temperature for 12 h) and the mixture refluxed for 24 h with the formation of a yellow powder. The solid was filtered off washed with water, methanol and ether and dried under vacuum. Yield (6.5 g, 80%).

Experimental details

The C-bound H atoms were geometrically placed (C–H = 0.95–0.98 Å) and refined as riding with $U_{\text{iso}}(\text{H}) = 1.2\text{--}1.5 U_{\text{eq}}(\text{C})$ and with $U_{\text{iso}}(\text{H})$ set to $1.2 U_{\text{eq}}(\text{N})$ [1–3].

Discussion

The extended “polytopic” ligands 2pzoap (*N*²,*N*⁶-bis(1-(pyrazin-2-yl)ethylidene)pyridine-2,6-dicarbohydrazide) contain multiple, contiguous coordination pockets, and in principle there are many different ways in which they could bind metal ions. The complexes containing the ligand 2pzoap have been reported. But the structure of the ligand/educt 2pzoap has not been reported [4–7]. As shown in the figure, the compound 1 crystallizes in the monoclinic space group *P*2/*n* with the title molecule located on a twofold axis and a methanol molecule in general position. The bond lengths of N3=C5, N2–C4 and C3–N1 are 1.281, 1.344 and 1.338 Å, respectively, which are similar with the reference [8].

Acknowledgements: The authors gratefully acknowledge the financial support by National Undergraduate Training Program for Innovation and Entrepreneurship (201911736006) Science Foundation of Shaanxi Province of

China (2016JQ2001) and Young Talent fund of University Association for Science and Technology in Shanxi, China.

References

1. Bruker: APEX3, SAINT-Plus, XPREP. Bruker AXS Inc., Madison, WI, USA (2016).
2. Sheldrick, G. M.: SHELXT – Integrated space-group and crystal-structure determination. *Acta Crystallogr.* **A71** (2015) 3–8.
3. Sheldrick, G. M.: Crystal structure refinement with SHELXL. *Acta Crystallogr.* **C71** (2015) 3–8.
4. Thompson, L. K.; Matthews, C. J.; Zhao, L.; Claire, W.; Leech, M. A.; Howard, J. A. K.; Katsuki, T.: Supramolecular metal helicate structures with incomplete metal ion coordination. *Dalton Trans.* **15** (2001) 2258–2262.
5. Niel, V.; Milway, V. A.; Dawe, L. N.; Grove, H.; Tandon, S. S.; Abedin, T. S. M.; Kelly, T. L.; Spencer, E. C.; Howard, J. A. K.; Collins, J. L.; Miller, D. O.: Coordination oligomers in self-assembly reactions of some tritopic picolinic dihydrazone ligands. Mononuclear, dinuclear, hexanuclear, heptanuclear, and nonanuclear examples. *Inorg. Chem.* **47** (2008) 176–189.
6. Zhao, L.; Xu, Z. Q.; Grove, H.; Milway, V. A.; Dawe, L. N.; Abedin, T. S. M.; Thompson, L. K.; Kelly, T. L.; Harvey, R. G.; Miller, D. O.; Weeks, L.; Shapter, J. G.; Pope, K. J.: Supramolecular Mn(II) and Mn(II)/Mn(III) grid complexes with [Mn₉(μ₂-O)₁₂] core structures. structural, magnetic, and redox properties and surface studies. *Inorg. Chem.* **43** (2004) 3812–3824.
7. Zhu, G. Z.; Lu, Z. S.; Shi, H. L.; Xu, S. P.; Lu, H.; Wang, X. S.: Crystal structure of (*Z*)-*N*'-[amino(pyridin-2-yl)-methylene]-2-hydroxybenzohydrazide, C₁₃H₁₂N₄O₂. *Z. Kristallogr. NCS* **227** (2012) 533–534.
8. Qiao, Y. L.; Cui, J. C.; Ding, L. H.; Yin, H. D.: 2,2'-[Pyridine-2,6-diylbis(carbonylhydrazono)]dipropanoic acid *N,N*-dimethylformamide disolvate. *Acta Crystallogr.* **E65** (2009) o2652.