# Supporting Information

## Sustainable Routes to a Soluble Anthelmintic Thiabendazole Organic Salt

**Ilenia D'Abbrunzo [1], Elisa Zampieri [1], Maja Bjelošević Žiberna [2], Serena Bertoni [3], Cécile Häberli [4,5], Jennifer Keiser [4,5] and Beatrice Perissutti [1,*]**

[1] Department of Chemical and Pharmaceutical Sciences, University of Trieste, P.le Europa 1, 34127 Trieste, Italy; ilenia.d'abbrunzo@units.it (I.D.); elisa.zampieri@studenti.units.it (E.Z.)

[2] Faculty of Pharmacy, University of Ljubljana, Aškerčeva Cesta 7, 1000 Ljubljana, Slovenia; maja.bjelosevic.ziberna@ffa.uni-lj.si

[3] Department of Pharmacy and Biotechnology, University of Bologna, V. S. Donato 19/2, 40127 Bologna, Italy; serena.bertoni4@unibo.it

[4] Department of Medical Parasitology, Swiss Tropical and Public Health Institute, 4123 Allschwil, Switzerland; cecile.haeberli@swisstph.ch (C.H.); jennifer.keiser@swisstph.ch (J.K.)

[5] University of Basel, 4000 Basel, Switzerland

* Correspondence: bperissutti@units.it

## Contents


| Description | Page N° |
|---|---|
| **Figure S1.** PXRD pattern comparison of TBZ and PTOS·MH coground in equimolar ratio for 2 h at 25 Hz in the presence of different grinding liquids and processed by NG. | **2** |
| **Figure S2:** PXRD patterns of TBZ-PTOS·MH co-ground for 2 h at 25 Hz using LAG with 80 μL 4-MeTHP (blue), compared with the physical mixture (purple) and the physical mixture treated for 2h at 40°C (teal green). | **3** |
| **Figure S3.** HSM images (mag 10×) of TBZ-PTOS salt from 25 °C to 205 °C. | **4** |
| **Figure S4.** PXRD pattern comparison of the salt (prepared by LAG with 4-MeTHP) at room temperature and the new solid phase formed after heating at 10 °C/min from 30 °C to 160 °C. Please note that the same phase is also formed from a phase originally different as it was prepared by using MeOH as grinding liquid. | **4** |
| **Figure S5.** Classical dissolution of TBZ and TBZ-PTOS salt in 150 mL of phosphate buffer pH 7.4 at 37 °C. Please note that standard deviations are smaller than 0.005 and are not visible at the scale of the plot. | **5** |
| **Figure S6.** PXRD results of salt physical stability at different storage temperatures over the period of 18 months. | **6** |

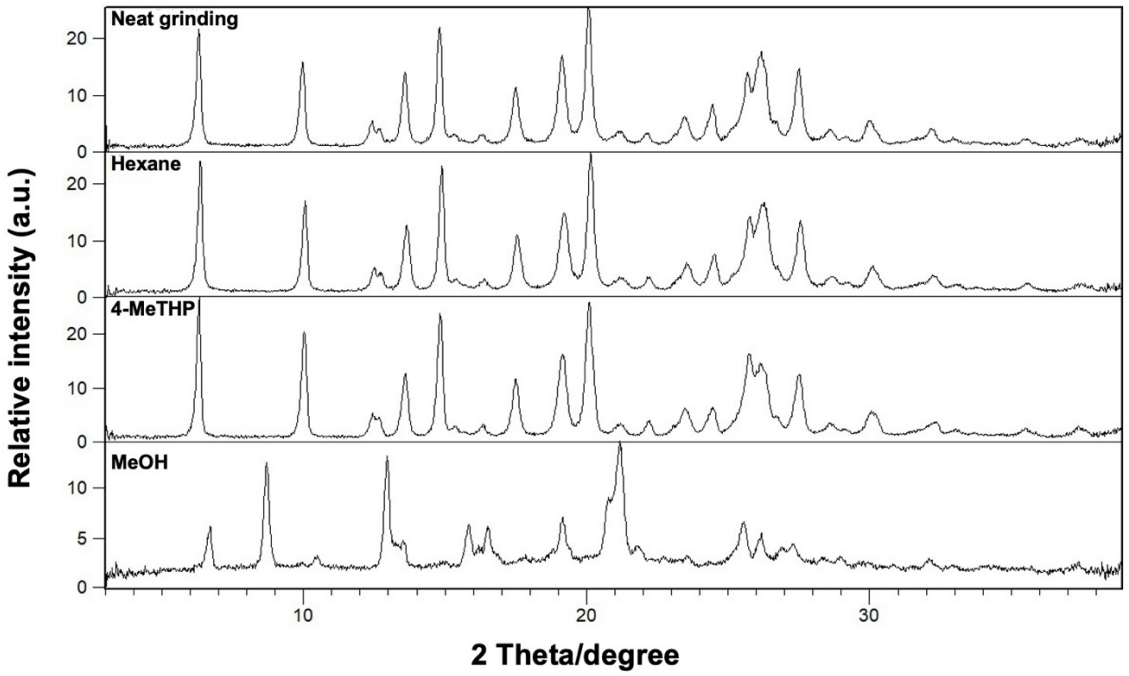


**Figure S1.** PXRD pattern comparison of TBZ and PTOS·MH coground in equimolar ratio for 2h at 25 Hz in the presence of different grinding liquids and processed by NG.

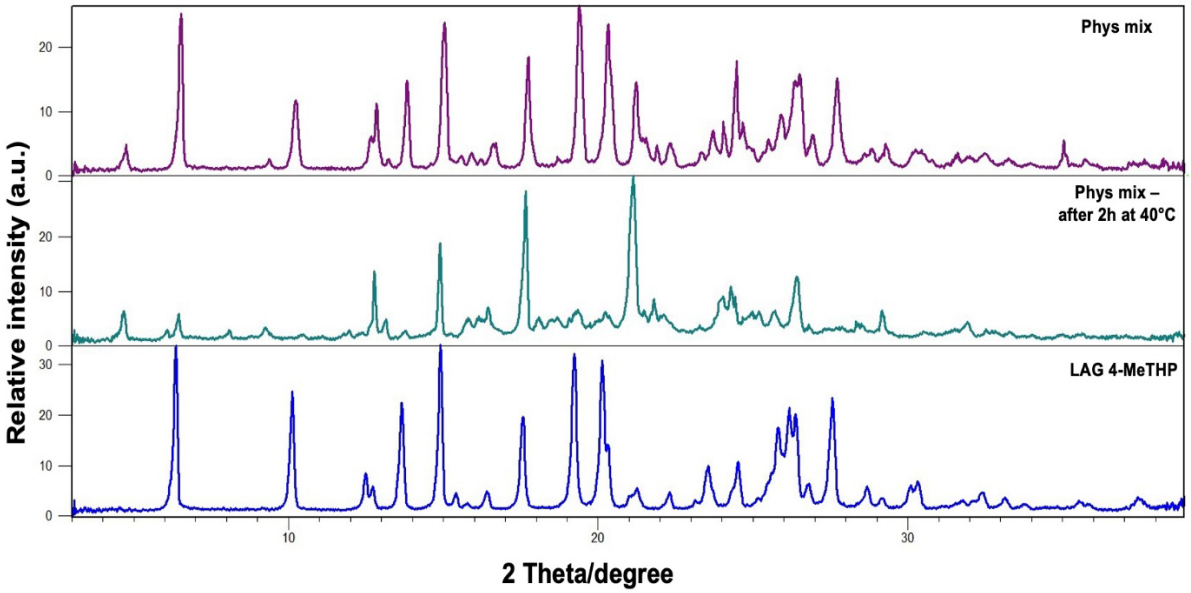


**Figure S2:** PXRD patterns of TBZ-PTOS·MH co-ground for 2 h at 25 Hz using LAG with 80 µL 4-MeTHP (blue), compared with the physical mixture (purple) and the physical mixture treated for 2h at 40°C (teal green).

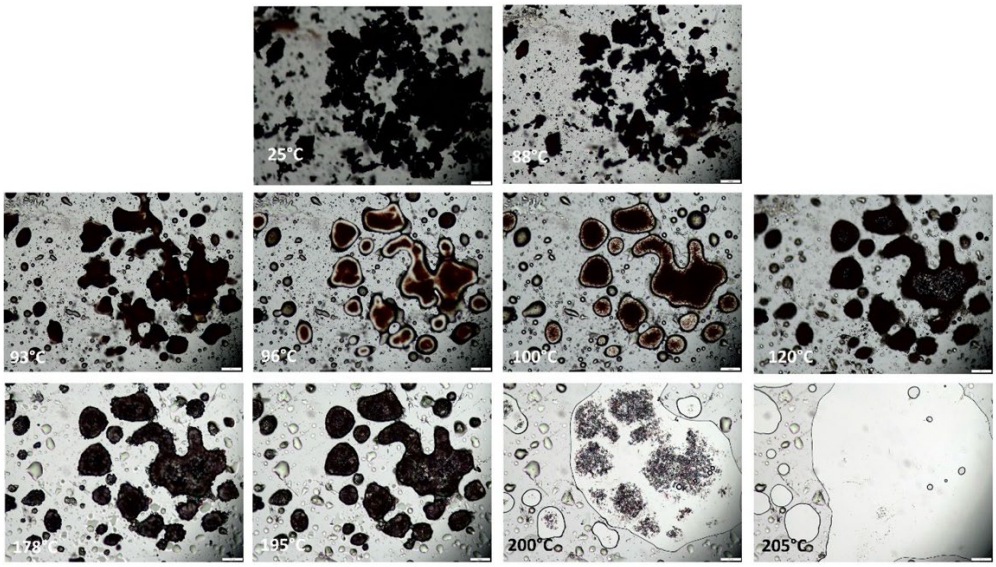


**Figure S3.** HSM images (mag 10×) of TBZ-PTOS salt from 25 °C to 205 °C.

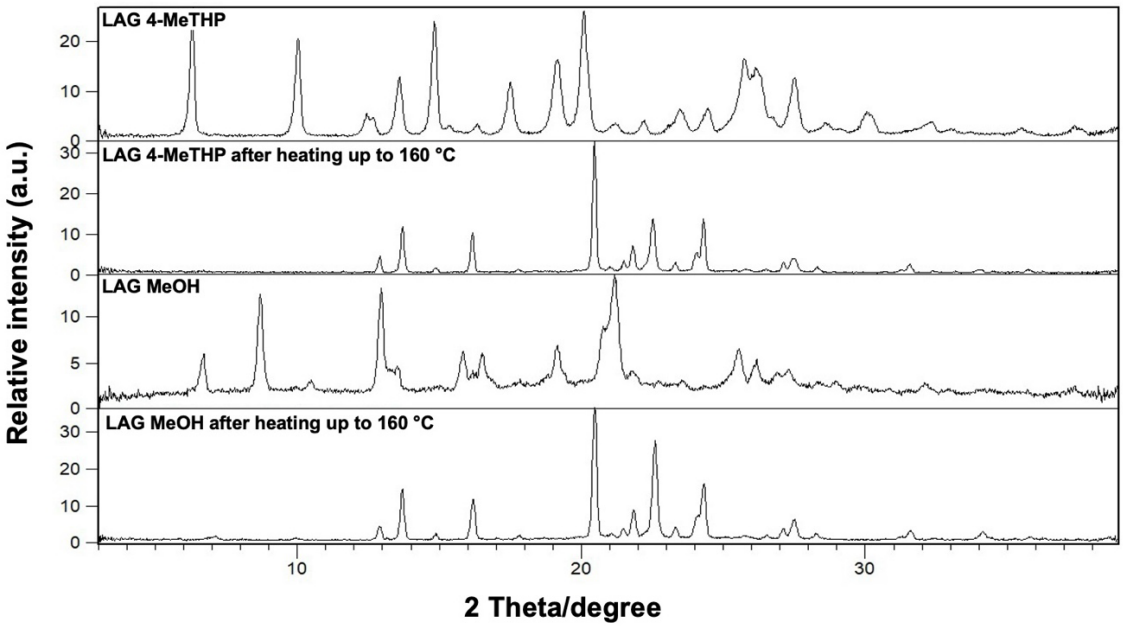


**Figure S4.** PXRD pattern comparison of the salt (prepared by LAG with 4-MeTHP) at room temperature and the new solid phase formed after heating at 10 °C/min from 30 °C to 160 °C. Please note that the same phase is also formed from a phase originally different as it was prepared by using MeOH as grinding liquid.

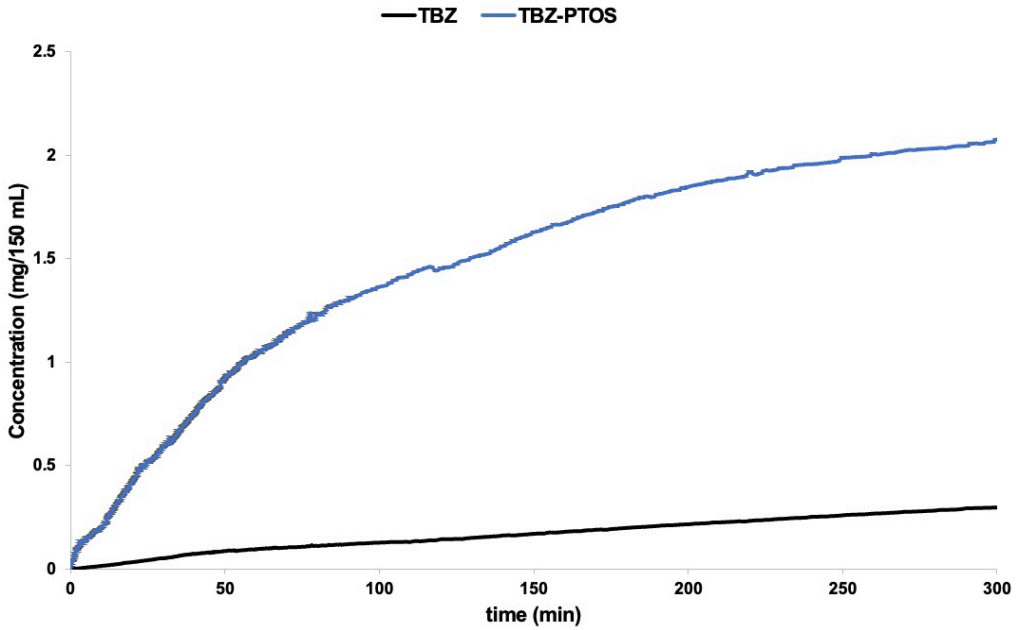


**Figure S5.** Mean dissolution profiles (n=3) of 3 mg of pure TBZ (black) and an equivalent TBZ amount from the salt (blue) in 150 mL of phosphate buffer pH 7.4 at 37 °C. Please note that standard deviations are smaller than 0.005 and are not visible at the scale of the plot.

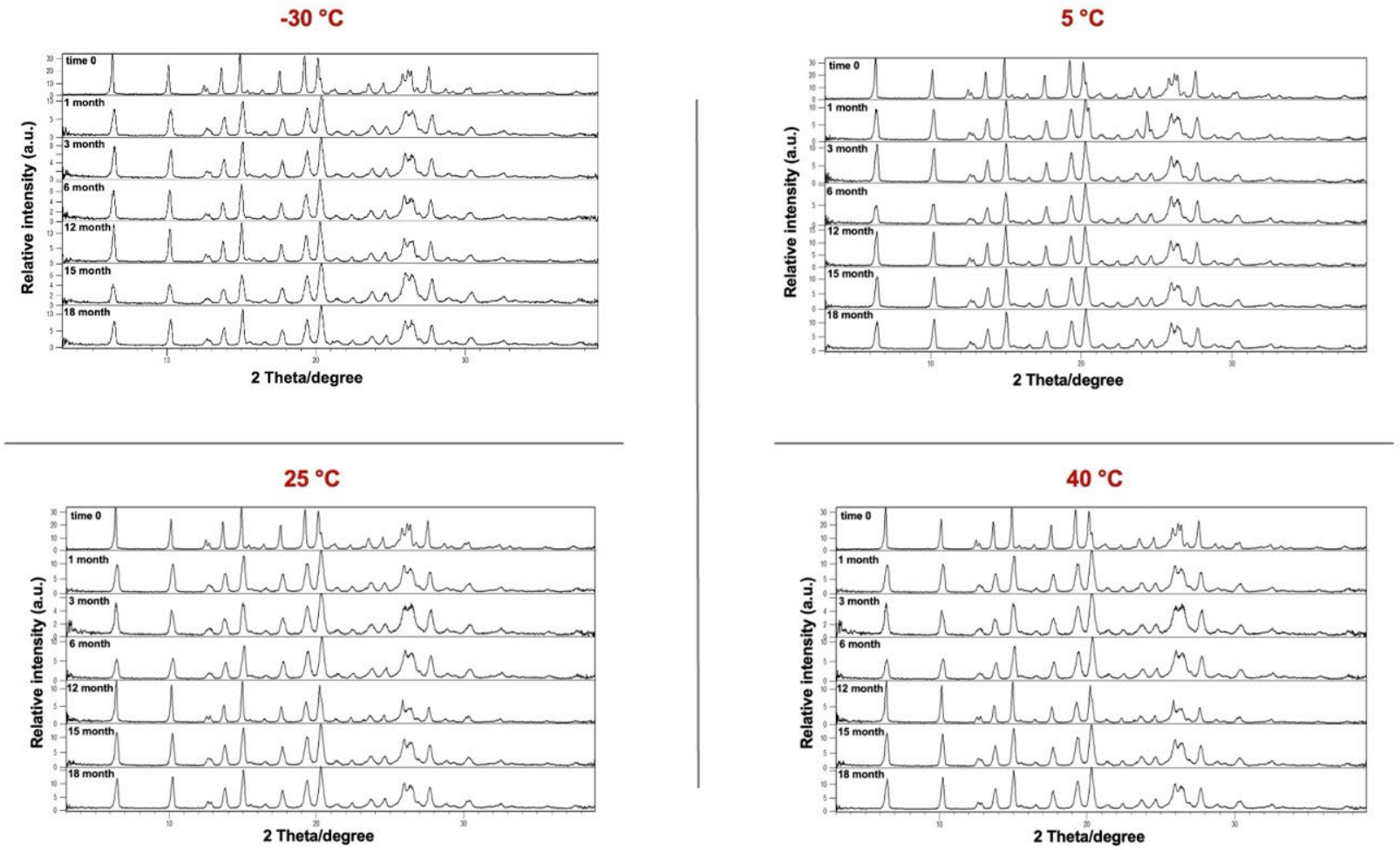


**Figure S6.** PXRD results of salt physical stability at different storage temperatures over the period of 18 months.