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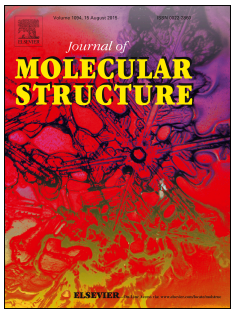

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Crystal Structures of Seven Molecular Salts Derived from Benzylamine and Organic Acidic Components

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Abstract:

Cocrystallization of the commonly available organic amine, benzylamine, with a series of organic acids gave a total of seven molecular salts with the compositions: (benzylamine) : (p-toluenesulfonic acid) **(1)** $[(HL)^+ \cdot (tsa^-)]$, (benzylamine) : (o-nitrobenzoic acid) **(2)** $[(HL^+) \cdot (onba)^-]$, (benzylamine) : (3,4-methylenedioxybenzoic acid) **(3)** $[(HL^+) \cdot (mdba^-)]$, (benzylamine) : (mandelic acid) **(4)** $[(HL^+) \cdot (mda^-)]$, (benzylamine) : $(5\text{-bromosalicylic acid})_2$ **(5)** $[(HL^+) \cdot (bsac^-) \cdot (Hbsac)]$, (benzylamine): (m-phthalic acid) **(6)** $[(HL^+) \cdot (Hmpta^-)]$, and $(benzylamine)_2$: (trimesic acid) **(7)** $[(HL^+)_2 \cdot (Htma^{2-})]$. The seven salts have been characterised by X-ray diffraction technique, IR, and elemental analysis, and the melting points of all the salts were also reported. And their structural and supramolecular aspects are fully analyzed.

The result reveals that among the seven investigated crystals the NH_2 groups in the benzylamine moieties are protonated when the organic acids are deprotonated, and the crystal packing is interpreted in terms of the strong charge-assisted N-H···O hydrogen bond formation between the ammonium and the deprotonated acidic groups. Except the N-H···O hydrogen bond, the O-H···O hydrogen bonds (charge assisted or neutral) were also found at the salts **4**-**7**.