

Structure and properties of Domperidone and its succinate salt

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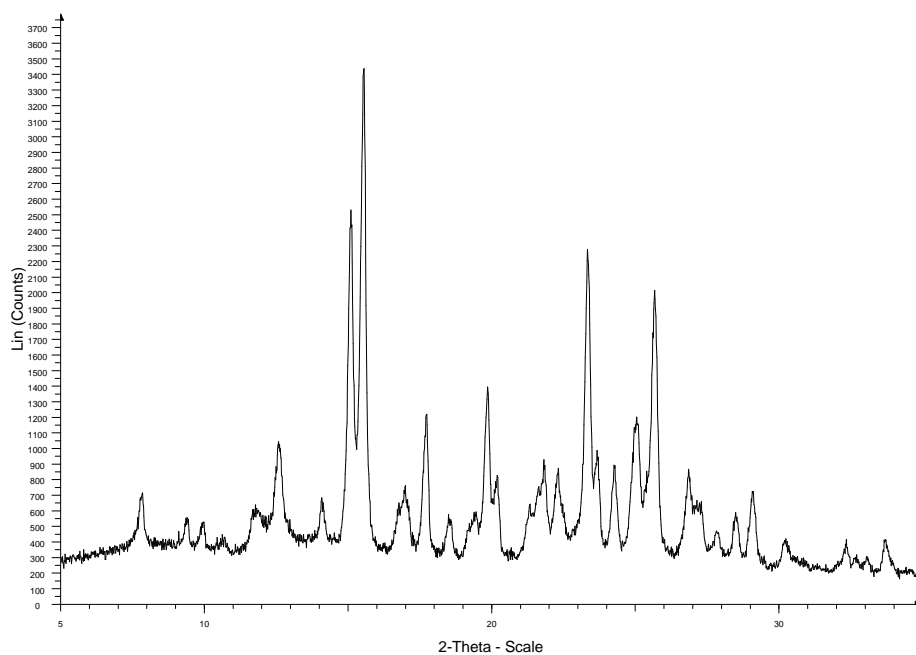
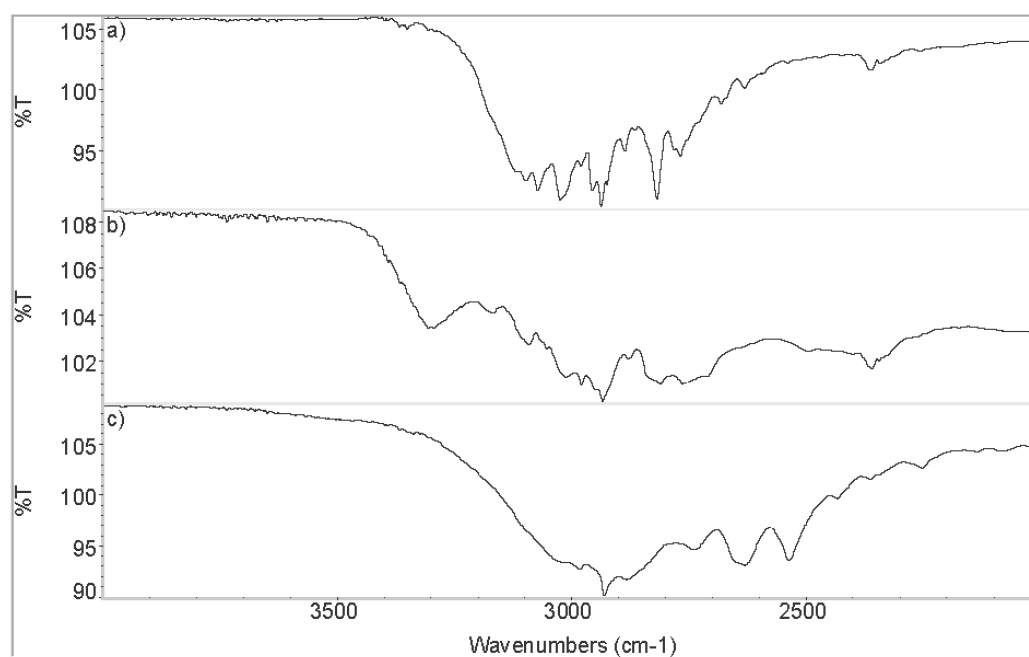


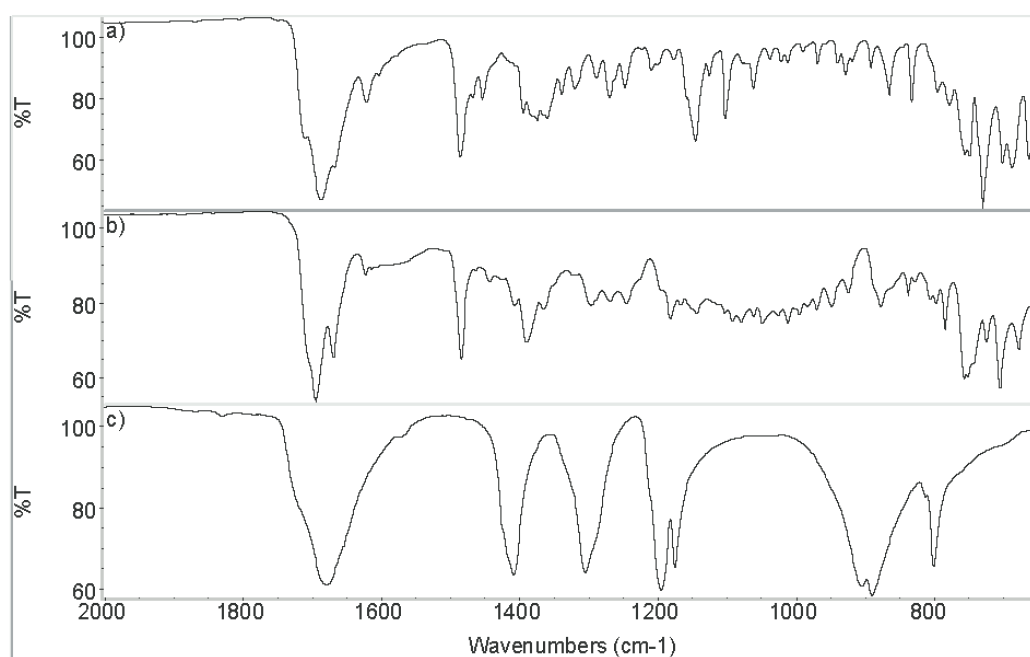
Fig. S1 – XRPD pattern of 1:1 domperidone succinate salt obtained by wet grinding method.

FT-IR

- A new peak appears at 3304 cm^{-1} , due to NH stretching, suggesting that the nitrogen of the piperidine ring has been protonated;
- a new band is present between 2200 and 2550 cm^{-1} indicating the amine salification;
- the amide C=O stretching (1687 cm^{-1} in pure domperidone) shifts towards high frequency (1695 cm^{-1}) suggesting that the amide group is involved in a weaker hydrogen bond than in pure domperidone;
- the C=O carboxylic stretching (1678 cm^{-1} in pure succinic acid) shifts towards low frequency (1670 cm^{-1}). This peak could be attributed to the asymmetric stretching of the COO^- group.
- a new peak is present at 1389 cm^{-1} due to the symmetric stretching of the COO^- group.
- the region between 1200 and 650 cm^{-1} has changed.



(a)



(b)

Fig S2: FT-IR traces of a) domperidone, b) *DSA11* and c) succinic acid samples in the frequency region 4000-2000 cm⁻¹ (A) and 2000-600 cm⁻¹ (B).

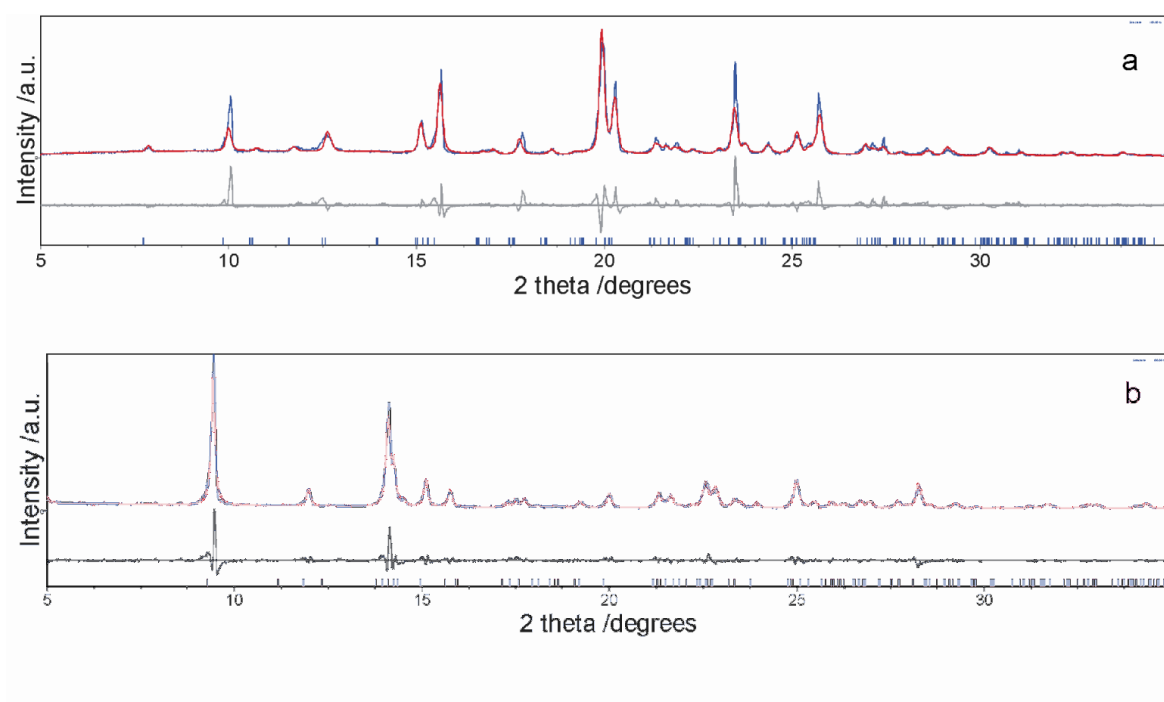


Figure S3 - Rietveld refinement of a) *DSA11* salt and b) pure domperidone. The experimental pattern (blue) is compared with the calculated one (red). In the bottom, the difference curve (gray) is also reported together with the bars representing the reflections of the phases.

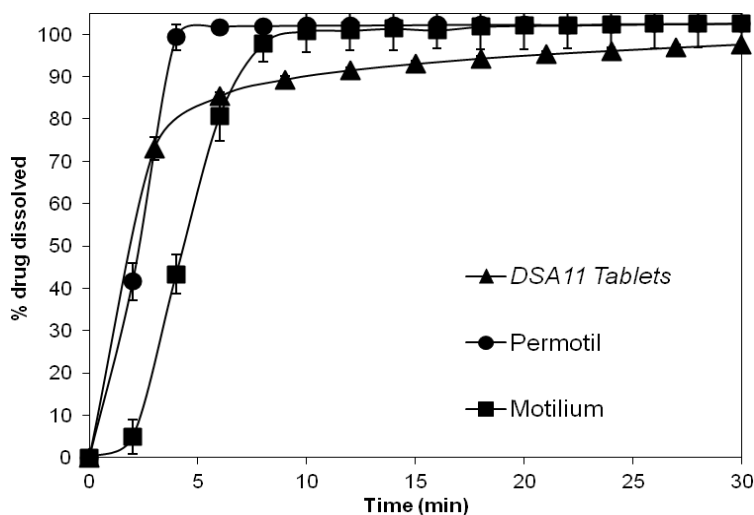


Fig S4: Comparison of the dissolution profiles in HCl (pH=1) of *DSA11* tablets and the commercial products: Permotil (domperidone maleate), and Motilium (domperidone base), drug dose is always 10 mg.