

“Fold and leaf shape”

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We have noticed an original analogy between the leaf configuration in the bud and the paper dolls. If you fold a paper sheet and cut it with scissors, each fold will give either a sinus either a lobe when you unfold it. A lot of leaves follow this geometry in the bud. The leaf margin is folded on a plane as if it had been cut with scissor For this purely geometric reason, lobes and sinuses of the unfolded leaf exactly correspond to the initial folds. We have called these leaves "kirigami", which means fold and cut.

The purely geometric part of this work shows how much the leaves geometries are constrained by their folded development. We also show that these geometries are very diverse and create very different leaves shapes. The second more biologic part proposes a mecanism for the fold development and a candidate to play the scissor role.

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