Ornamental and vegetable pinecones

Differences of decorative and vegetable pinecones

	Ornamental pinecone	**Vegetable pinecone*** (spiral phyllotaxis)
Similarity Symmetry **groups of rosettes G_{20}** *(We consider the isometric symmetry groups of the projections of 3D objects on a plane E^2).*	**D_n** (**nm**) is a ***dihedral group***. **n** is a **natural number**: the order of rotation; The angle of this rotation is rational. **L** is a ***dilative rotation*** **m** denotes a reflection	**L1** **L** is a ***dilative rotation***. The angle of this dilative rotation is **irrational 2 * pi * 0.618…** Golden Section of Circle in normal spiral phyllotaxis.
Enantiomorphism	The enantiomorphism does not occur	The enantiomorphism occurs
Number of right and left contact parastichies	The same	The different. Typically, the neighboring Fibonacci numbers.
Number of contact parastichies at different levels of pinecone	The same	The different because of the rise phyllotaxis
Slope of opposite (right and left) parastichies to the direction of the pine cone axis	The same	The different
Whole pinecone shape	Regular	Can be deformed
	* The plant shoots with multijugate phyllotaxis belong to **CnL (nL)** group. **C_n (n)** is a ***cyclic group***. n = Greatest Common Deviser. For example, phyllotaxis (6:9) belongs to **C3L (3L)** group.	