Review and update of the classification of precious corals.

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Fig. 1 - Precious corals, *C. rubrum*, *P. elatius*, *C. Japonicum*, *C. konojoi*, *H. Laauense*, Coll. SGDF, Photograph M.Rondeau

Introduction

"Precious coral" (Fig. 1) is a general term that describes the species of natural coral (with mineral endoskeleton) used in the jewellery industry. They are highly valued and sought-after for their physical properties (toughness, lustre, workability) and their bright colours ranging from deep red to orange and variations from pink, pink-orange to white.. Although they share the same name "precious coral", they all have their own taxon[1] in the classification system for living organisms.
In biology, "precious corals" belong to the phylum Cnidaria (Hatschek, 1888), the subclass Octocoralliarids (Haeckel, 1866) and the family Coralliidae (Lamouroux, 1812).
In this family, which has 43 valid species in 3 genera (Tu et al., 2015), 8 species are known to be harvested for their use in jewellery and are therefore called "precious coral".

Discussion

As far as their classification is concerned, numerous updates and suggestions have been recorded and approved over the years. The traditional classification that is still the most used by professionals and the general public is the one introduced by van Ofwegen in 2004.
It indicates that the family Coralliidae is divided into two genera: *Corallium* (Bourne, 1900) and *Paracorallium* (Bayer and Cairns, 2003).
However, in the light of recent studies on mitochondrial, mitogenomic, and nuclear markers as well as morphological characteristics (Ardila *et al*., 2012; Figueroa and Baco 2014; Tu *et al*., 2015; Tu *et al*., 2016; Uda *et al*., 2013), the genus *Paracorallium* is no longer considered a valid taxon because all its species are integrated into the genus *Corallium*, with *Paracorallium* thus subsumed[2] within *Corallium* (Ardila *et al*., 2012).
The new classification (Tu *et al*., 2016) of Coralliidae divides the family into three genera: *Corallium*, *Hemicorallium*, and restores *Pleurocorallium* (Gray, 1867), see (Ardila *et al*., 2012; Figueroa and Baco 2014; Tu *et al*., 2015; Tu *et al*., 2016).

[1] In biology, a taxon is a group of living beings with common characteristics (because of their kinship), considered by taxonomists as forming a unit. This makes it possible to classify individuals.

[2] In scholastic philosophy, to report, to refer an individual to a species; to report, to refer a species to a genus.

The accepted status of species used in jewellery according to the new classification is as follows:

VAN OFWEGEN, 2004	TU ET AL., 2016	TRADE NAMES
Corallium elatius Ridley, 1882	*Pleurocorallium elatius* Ridley, 1882	Orange to red: Momo, Cerasuolo and Satsuma Pink and flesh tones: Magai, Boké and Angel Skin
Corallium konojoi Kishinouye, 1903	*Pleurocorallium konojoi* Kishinouye, 1903	White Saran, Pure white and Shiro
Corallium laauense Bayer, 1956	*Hemicorallium laauense* Bayer, 1956	Deep sea or Shinkai
Corallium regale Bayer, 1956	*Hemicorallium regale* Bayer, 1956	Garnet
Corallium rubrum Linnaeus, 1758	*Corallium rubrum* Linnaeus, 1758	Mediterranean, Sardinian
Corallium secundum Dana, 1846	*Pleurocorallium secundum* Dana, 1846	Midway, Rosato or White/Pink
Corallium sulcatum Kishinouye, 1903	*Hemicorallium sulcatum* Kishinouye, 1903	Miss or Misu
Paracorallium japonicum Kishinouyi, 1903	*Corallium japonicum* Kishinouyi, 1903	Aka, Moro or Oxblood

It is worthy to note that part of the *P.elatius* fished in the Taiwan Province of China for the jewellery trade may contain a recently discovered species *P. carusrubrum* (Tu et al., 2012) as it has been reported to be circulating as pink coral (Jeng, 2015).

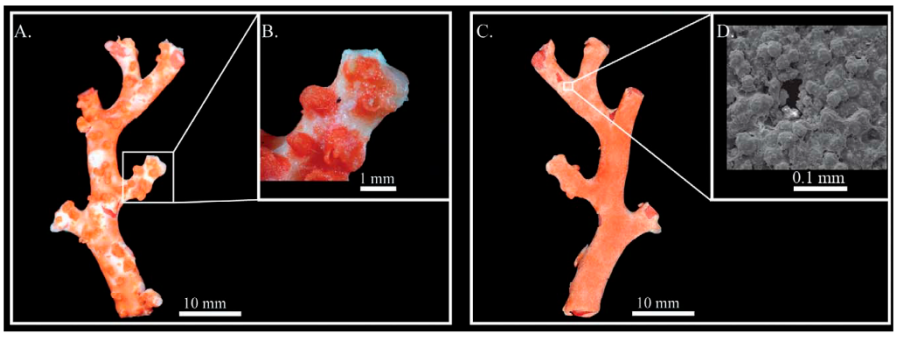

Fig. 2
Holotype of:
Corallium carusrubrum n. sp., ASIZ0000960:
(A) "front" of the colony;
(B) close-up of the cortical mounds;
(C) "back" of the colony;
(D) EM image of the cortex - the pore is the opening of a solenian canal.
After (Tu T. *et al.*, 2012)

Following this discovery, a new genetic study (Tu *et al*., 2015) indicates that the boundaries between three species of Asian waters (*P. carusrubrum*, *P*. *elatius* and *P. konojoi*) are ambiguous and should be grouped and referred to as the "*Pleurocorallium elatius* complex" (Tu T.-H. *et al*., 2015) (Fig. 3).

Fig. 3 - Hue variations of the corals of the P. *elatius* complex. Coll. SGDF, Photo M. Rondeau

Conclusion

To not confuse the trade or customs and abiding by the new classification (Tu, *et al.,* 2012), GGTL Laboratories Switzerland will issue coral reports mentioning the traditional the classification of Van Ofwegen's as well the coral "type" of the "*P. elatius species-complex*" of Tu, Dai and Jeng

Identification	Species	Comments
Coral	"*P. elatius* complex"	*Pleurocorallium elatius* "type" (Ridley, 1882) *Pleurocorallium konojoi* "type" (Kishinouye, 1903) *Pleurocorallium carusrubrum* "type" (Tu, Dai & Jeng, 2012)

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Taxonomic references

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