Introduction: Axillary hyperpigmentation is a frequent cause of dermatologic consultation. It is a post-inflammatory hyperpigmentation related with continuous irritation due to hair removal, antiperspirants. Currently, there is no widely accepted treatment for this disorder and few topical agents are effective and tolerable.

Objective: A single-center, comparable, prospective study evaluated the efficacy and safety of a novel serum containing CG-TGP2, nicotinamide, 4-butyl-resorcinol, N-undecylenoyl phenylalanine and dihydroavenanthramide (product A) in axillary hyperpigmentation, when compared with a cream containing nicotinamide, arbutin, bisabolol and retinaldehyde (product B).

Materials and Methods: After Ethical Committee Approval, 33 women, aged 18 to 58 years with axillary hyperpigmentation participated in this trial. For 90 days, participants used product A in one axillary and product B in the other side, twice a day. Evaluations were made at baseline, day 45 and day 90 for safety, efficacy (dermatologic exam, photographic analysis, skin colorimetry) and subjectively. Volunteers were oriented to use de same antiperspirant and do the hair removal 2 days prior to the consultation.

Results: Both products were effective, with a higher potential of skin whitening in A than B, with an improvement of 62,5% (A) in *L colorimetric value (p<0,001) against 33,14% (B) (p<0,001) after 90 days. Statistically there was no difference between the products.

Conclusions: There are few studies of physiopathology and treatment of axillary hyperpigmentation. The use of a cosmetic with anti-inflammatory and whitening properties is important in the management of this condition. This new serum was effective, tolerable and safety in patient with this disorder, with higher efficacy when compared with a cream with retinaldehyde, although the improvement was not statistically significant, due the small number of participants. This novel product has ingredients that act in different mechanisms of hyperpigmentation physiopathology and has anti-inflammatory action and can be one of the treatments for this condition.