

# In-vitro antityrosinase activity of cosmetic creams

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Tyrosinase is a well-known key enzyme in melanin biosynthesis. Indeed, it catalyzes two distinct sequential reactions in melanin biosynthesis: the hydroxylation of tyrosine to DOPA followed by the oxidation of DOPA to dopaquinone (figure 1. Melanin synthesis pathway). Researchers have been looking for new tyrosinase inhibitors as potential depigmenting agent, and Kojic acid is well known as one of the safest and most efficient tyrosinase inhibitors. In the present study, we evaluate the results of two cosmetic products in comparison with Kojic Acid 1%. One of them contains Kojic acid (1%), associated with Arbutin (0,1%), Glycyrrhiza Glabra Extract, Morus Alba Extract, Aspergillus Ferment (Blending Bleaching Cream, Skin Tech) and the other doesn't contain Kojic acid but Arbutin (1%), Nicotinamide Adenine Dinucleotide, Vit C, Glycyrrhiza Glabra Extract, Morus Alba Extract, Aspergillus Ferment (Aclaranse®, Aesthetic Dermal). Both products showed inhibitory effects against mushroom tyrosinase with Aclaranse®

and Blending Bleaching Cream exhibiting an IC50 values of 3,36 µg/ml, and 5,68 µg/mL respectively, compared to kojic acid (IC50 value of 12,04 µg/ml) (figure 2. Experimental plate setup for tyrosinase inhibition assay). The result of inhibition of tyrosinase activity was measured (figure 3. Dose dependent inhibition of tyrosinase activity by Aclaranse® and Blending Bleaching Cream): Aclaranse demonstrated to be 3,5 times more efficient than Kojic acid 1%, whereas Blending Bleaching Cream 2 times more effective in inhibiting mushroom tyrosinase activity.

These result present the high potential of cosmetic products which combine Kojic/Arbutin acid with other active depigmenting ingredients, and demonstrate the efficiency of cosmetic products (Aclaranse®, Blending Bleaching Cream) in the inhibition on the activity of the enzyme tyrosinase in vitro, which confirms skin whitening effect already observed clinically through topical application.

Figure 1. Melanin synthesis pathway

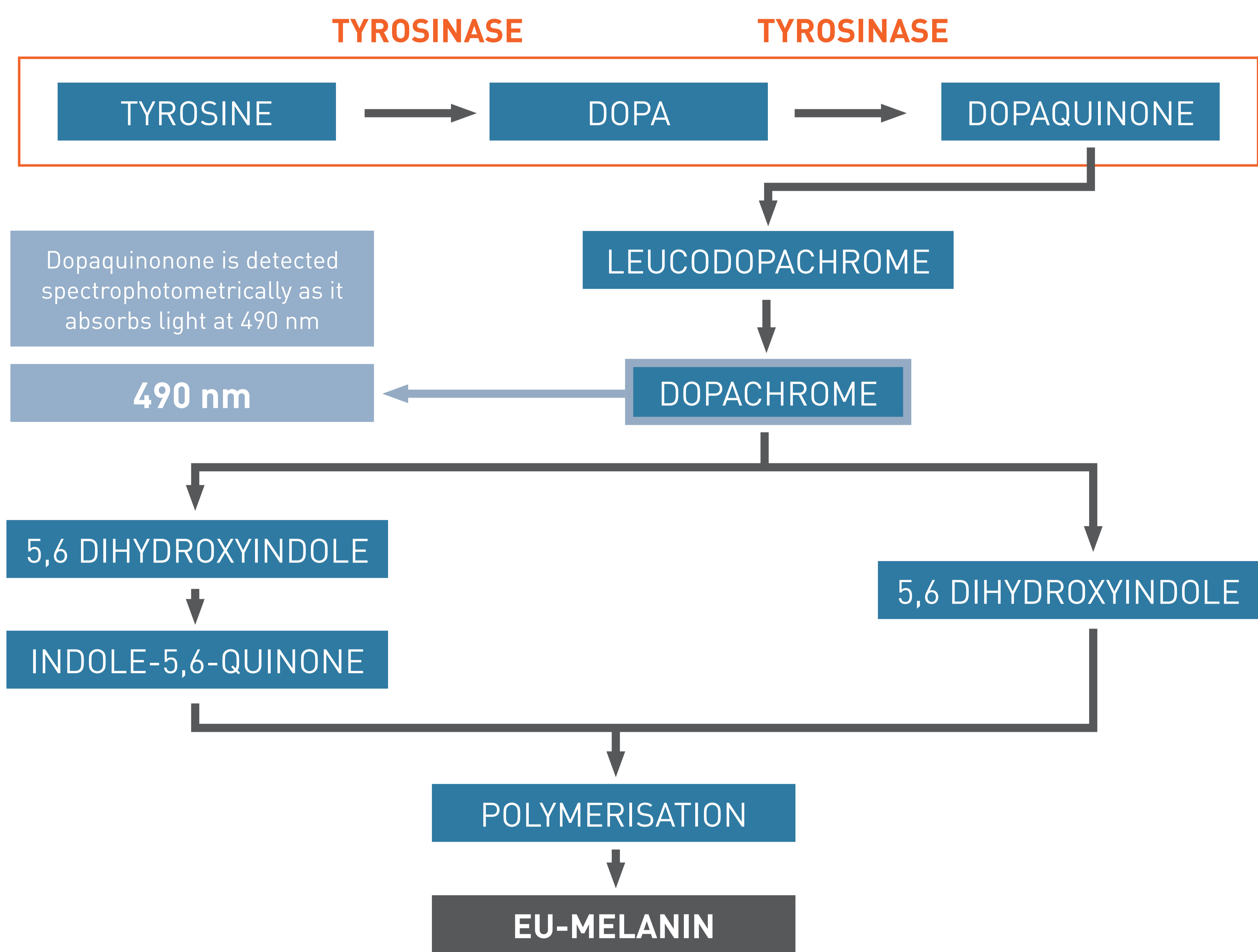


Figure 2 . Experimental plate setup for tyrosinase inhibition assay

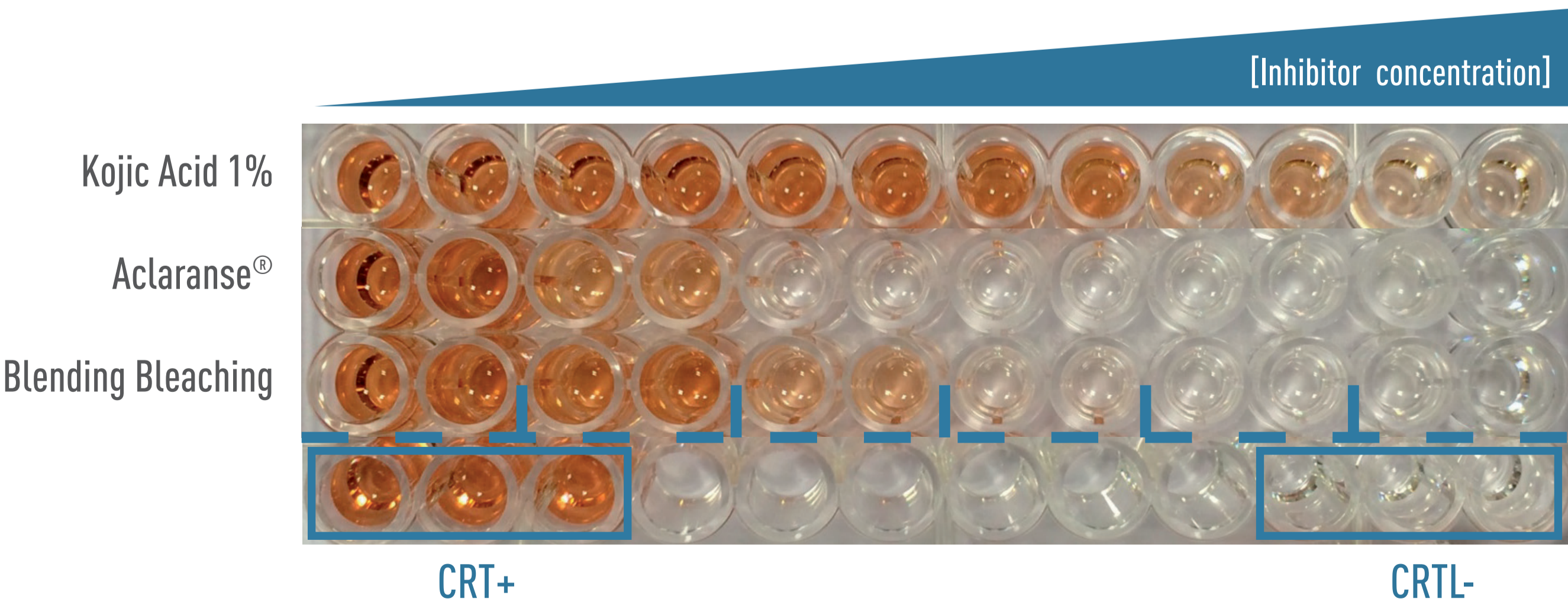
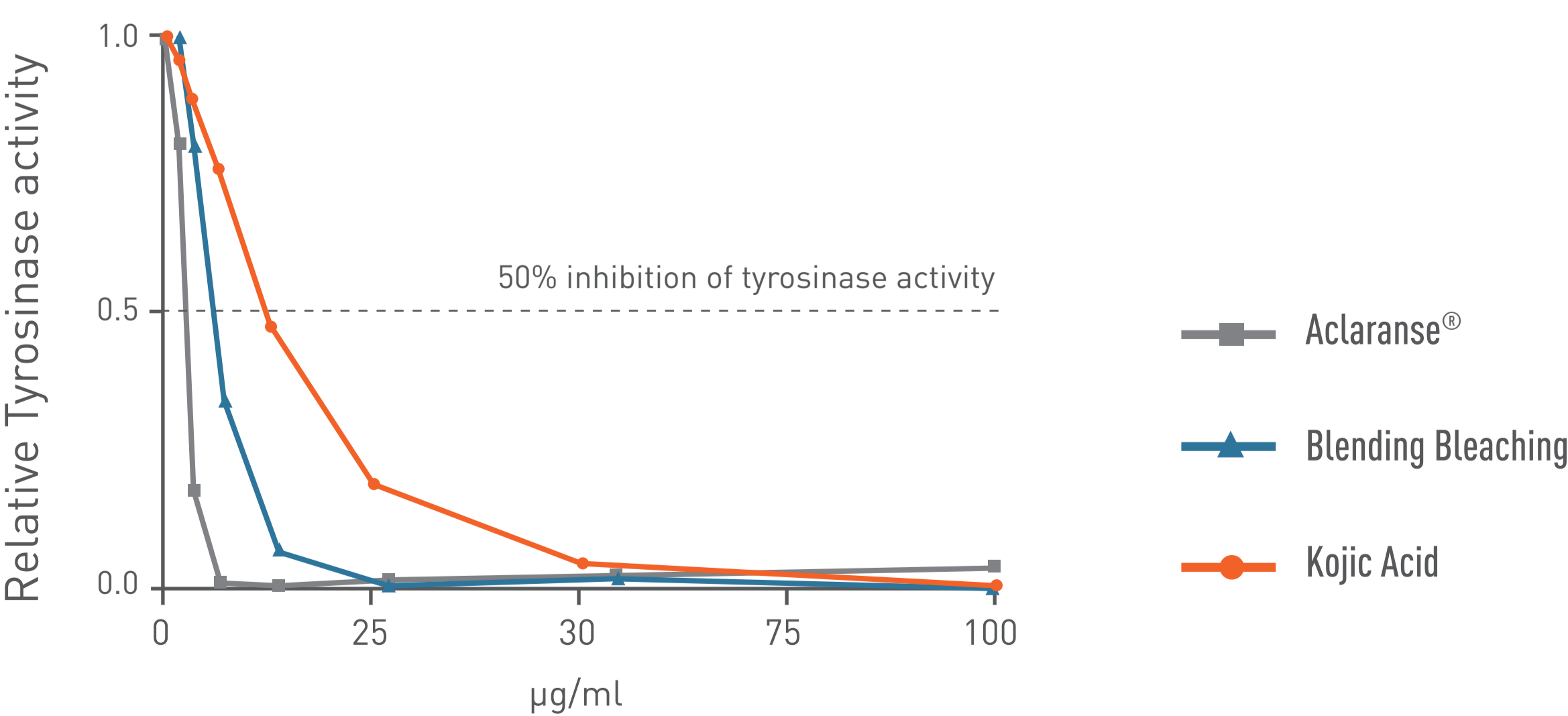


Figure 3. Dose dependent inhibition of tyrosinase activity by Aclaranse® and Blending Bleaching Cream



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