

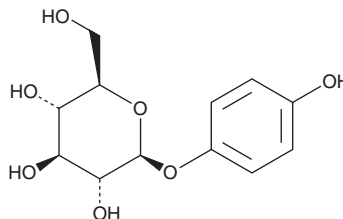
# PRODUCT INFORMATION



## Arbutin

Item No. 26407

**CAS Registry No.:** 497-76-7  
**Formal Name:** 4-hydroxyphenyl β-D-glucopyranoside  
**Synonyms:** β-Arbutin, NSC 4036  
**MF:** C<sub>12</sub>H<sub>16</sub>O<sub>7</sub>  
**FW:** 272.3  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 221, 283 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Arbutin is supplied as a crystalline solid. A stock solution may be made by dissolving the arbutin in the solvent of choice. Arbutin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of arbutin in these solvents is approximately 1, 10, and 20 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of arbutin can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of arbutin in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Arbutin is a glycosylated hydroquinone that has been found in *Arctostaphylos* plants and has diverse biological activities, including tyrosinase inhibitory, antioxidant, and anti-inflammatory properties.<sup>1,2</sup> It inhibits human tyrosinase activity in crude tyrosinase solution isolated from human melanocytes (IC<sub>50</sub>s = 5.7 and 18.9 mM using L-tyrosine and L-DOPA as substrates, respectively) as well as in intact melanocytes (IC<sub>50</sub> = 0.5 mM).<sup>3</sup> Arbutin (50 μM) inhibits hemolysis induced by the free radical generator AAPH (Item No. 82235) in sheep erythrocytes and inhibits AAPH-induced decreases in cell viability in cultured human skin fibroblasts when used at concentrations greater than 125 μM.<sup>2</sup> In an LPS-induced rat model of acute lung injury, arbutin (50 mg/kg) prevents increases in IL-1β, IL-6, and TNF-α levels in lung tissue and serum.<sup>4</sup> Formulations containing arbutin have been used in the treatment of hyperpigmentation disorders.<sup>1,3</sup>

### References

1. Seo, D.-H., Jung, J.-H., Lee, J.-E., et al. Biotechnological production of arbutins (α- and β-arbutins), skin-lightening agents, and their derivatives. *Appl. Microbiol. Biotechnol.* **95(6)**, 1417-1425 (2012).
2. Takebayashi, J., Ishii, R., Chen, J., et al. Reassessment of antioxidant activity of arbutin: Multifaceted evaluation using five antioxidant assay systems. *Free Radic. Res.* **44(4)**, 473-478 (2010).
3. Maeda, K. and Fukuda, M. Arbutin: Mechanism of its depigmenting action in human melanocyte culture. *J. Pharmacol. Exp. Ther.* **276(2)**, 765-769 (1996).
4. Ye, J., Guan, M., Lu, Y., et al. Arbutin attenuates LPS-induced lung injury via Sirt1/ Nrf2/ NF-κBp65 pathway. *Pulm. Pharmacol. Ther.* **54**, 53-59 (2019).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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