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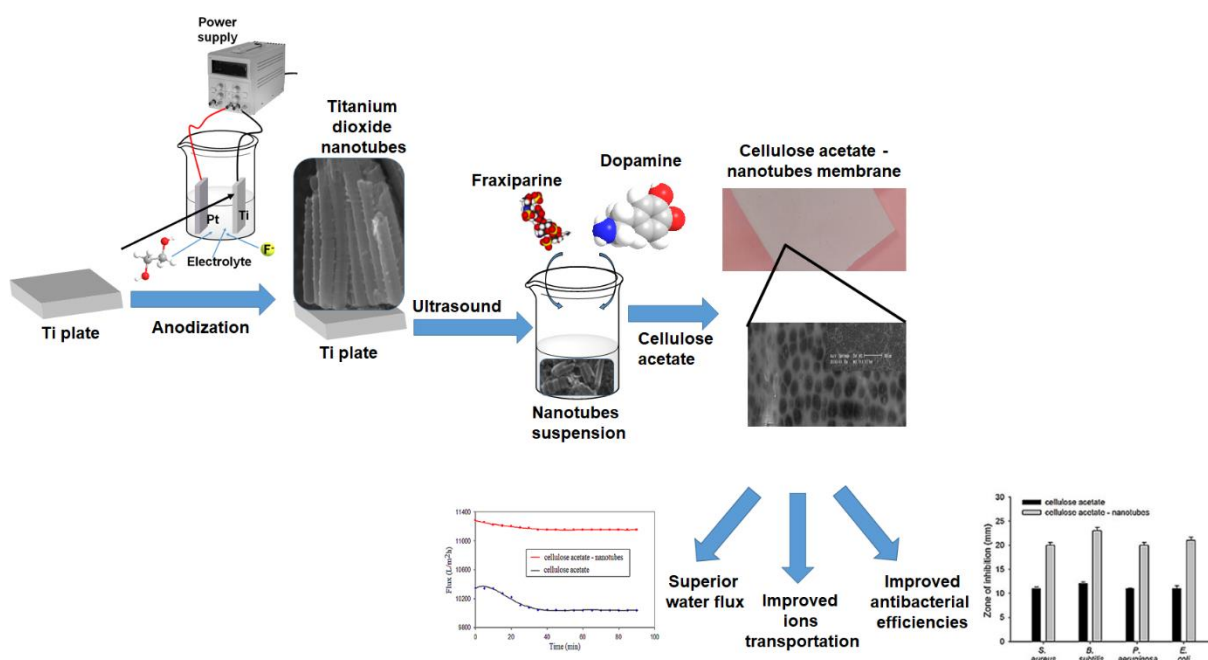
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### Graphical abstract



### Highlights

- TiO<sub>2</sub> nanotubes were detached from Ti surface using ultrasound treatment;
- Fraxiparine was linked to nanotubes using a natural polymer – polydopamine;
- Introducing nanotubes in CA membrane, lead to an improved permeate flux;
- Nanotubes presence increase hydrophilic character and improved ions transportation;

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