Claims

1. A membrane bioreactor module comprising a base assembly, an upper assembly, and an array of hollow fibre membranes extending therebetween; a plurality of support members extending between the base assembly and the upper assembly, at least one of the support members being hollow and defining a fluid flow path between the base and upper assemblies; wherein the upper assembly comprises an anchor plate having an upper face and a lower face and into which lower face one end of each of the support members is fixed; a plurality of couplings in the anchor plate each defining a socket open to the lower face and retaining an end of the respective hollow support member; and at least one duct extending from the socket and opening onto the upper face.

2. A membrane bioreactor module according to claim 1 in which the anchor plate defines at least one enclosure filled with a potting resin securing the hollow fibre membranes to the anchor plate.

3. A membrane bioreactor module according to claim 2 in which each duct extends through the potting resin.

4. A membrane bioreactor module according to claim 2 or 3, further comprising one fastener for each duct, wherein each duct opens onto the upper face adjacent to its respective fastener.

5. A membrane bioreactor module according to any of claims 2 to 4 in which the potting resin constitutes the upper face of the anchor plate.

6. A membrane bioreactor module according to any preceding claim in which each duct terminates in an insert secured to the anchor plate; or in which the socket is integrally formed with the anchor plate; or in which the socket defines an open lower end, a closed upper end, and a lateral window from which the duct extends; or in which the hollow support member is adhered into the socket; or in which the hollow support member is adhered into the base assembly; or which comprises a manifold mounted to the upper face of the anchor plate for establishing fluid communication with the bioreactor module.

7. A membrane bioreactor module according to claim 6 in which each coupling comprises a fastener axially aligned with the socket and accessible at the upper face for securing the manifold to the anchor plate; or in which the fastener comprises a threaded insert secured

to the anchor plate and having a thread with a longitudinal axis co axial with a longitudinal axis of the support member and the socket.

8. A membrane bioreactor module according to claim 6 or 7 in which the manifold is bolted to the anchor plate.

9. A membrane bioreactor module according to any of claims 6 to 8 in which the manifold comprises a respective lug having a through aperture which overlies each fastener when the manifold is aligned against the upper face of the anchor plate.

10. A membrane bioreactor module according to any of claims 6 to 9 in which the manifold defines a fluid permeate conduit in fluid communication with the at least one duct, a separate air supply conduit for delivering air to the base assembly, or both a fluid permeate conduit in fluid communication with the at least one duct, a separate air supply conduit for delivering air to the base assembly .

11. A membrane bioreactor module according to any of claims 6 to 10 comprising a gasket captured between the manifold and the anchor plate.

12. A membrane bioreactor module according to any preceding claim which is substantially rectangular in cross section, four support members being provided, one at each corner.

13. A membrane bioreactor module according to any preceding claim in which more than one of the support members is hollow and defines a respective fluid flow path between the base and upper assemblies.

14. A membrane bioreactor module according to any preceding claim in which the base assembly comprises at least one enclosure filled with potting resin securing the hollow fibre membranes to the base assembly in a manner which permits fluid communication between a lumen of each fibre and a chamber of the base assembly.

15. A membrane bioreactor module according to claim 13 comprising a plurality of enclosures, adjacent enclosures being separated from one another by a channel which extends through the base assembly.

16. A membrane bioreactor module according to any preceding claim comprising an air scouring system mounted to the base assembly.

17. A membrane bioreactor module according to claim 15 in which the air scouring system is operable to generate pulsed release of air to scour the hollow fibre membranes.

18. A membrane bioreactor module according to claim 15 or 16 comprising a gas supply line extending from the manifold to the air scouring system for delivering air from the manifold to the air scouring system.

19. A membrane bioreactor module according to any preceding claim comprising a seal provided between each support and socket to establish and maintain a fluid tight interface therebetween.

20. A membrane bioreactor module according to claim 18 in which the seal comprises a resiliently deformable seal and/or an adhesive seal.