slowly rotated in an aqueous inorganic alkaline salt medium.

5. A method according to claim 1, wherein said inducing is achieved by thermal gelation employing a salt solution at about physiological salt concentration and pH.

6. A method according to claim 1, including the step of cross-linking said isolated fibers.

7. A method of preparing fibers of atelopeptide collagen fibrils having physical properties resembling natural collagen fibers which comprises:

slowly adding to a dilute aqueous acidic solution of atelopeptide collagen an inorganic alkaline salt, whereby the ionic strength and pH of the solution are raised, while subjecting said solution to rotational shear forces of about 30 to 5000 dynes/cm$^2$ so that fibers of atelopeptide collagen fibrils come out of solution; and

substantially freeing said fibers of said alkaline salt.

8. A method according to claim 7, including the step of cross-linking said fibers.

9. A method according to claim 8, wherein said cross-linking agent is formaldehyde, glutaraldehyde, chromic sulfate, ultraviolet radiation or heat.

10. A method according to claim 7, wherein said shear force is produced by rotation of said solution at about 20 to 1000 rpm.

11. A method according to claim 10, wherein said aqueous acidic solution is an aqueous acetic acid solution at a concentration in the range of about 0.001 M to 0.1 M and said alkaline salt is disodium acid phosphate which is added to provide a final concentration in the range of about 0.01 M to 0.05 M.

12. The method of claim 1 wherein said fibers have a mean diameter of at least about 500 nm and appear as a rope-like structure in a scanning electron micrograph.

13. The method of claim 7 wherein said fibers have a mean diameter of at least 500 nm and appear as a rope-like structure in a scanning electron micrograph.

14. The method according to claim 1 wherein the shear force is about 75 to 2500 dynes/cm$^2$.

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