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#### 仿生脂肪细胞制备以及对水体中林丹去除的研究

#### Bionics fat cell (BFC) preparation and using in removal lindane from aqueous solution

**关键词:** [界面聚合](#) [仿生脂肪细胞](#) [林丹](#) [富集](#)

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**摘要:** 利用生物体脂肪组织可以对脂溶性有机物有效富集的原理,通过界面聚合合成了类似脂肪细胞结构的仿生脂肪细胞,并对其结构进行了初步表征.仿生脂肪细胞具有亲水性膜以及亲脂性的内部结构,亲水性的膜允许携带脂溶性有机物的水体穿过膜,亲脂性的内含物将脂溶性有机物富集截留.仿生脂肪细胞对林丹具有较好的去除效果,15%三油酸甘油酯含量的仿生脂肪细胞与粉末活性炭具有相当的对林丹去除能力.仿生脂肪细胞对林丹的去除机理包括内含物的生物富集以及膜上空腔的物理吸附两部分,而内含物的生物富集作用则是主要作用方式.

**Abstract:** Fat tissue of organism can accumulate hydrophobic chemicals efficiently and the accumulation level has the positive relationship with fat quantity. In this research, interface polymerization was employed to synthesize bionics fat cell (BFC), and the basic characteristics of BFC were also observed. BFC has the hydrophobic core and hydrophilic membrane structure, the water carrying with the hydrophobic chemicals can pass through the membrane of BFC into the interior, and then the hydrophobic chemicals are accumulated by hydrophobic core-triolein. BFC has a good lindane removal capacity close to powder active carbon (PAC), and they both can reduce the lindane from 7 to 0.2 ppm in aqueous solution. BFC could be regenerated easily comparing with PAC though the lindane removal capacity decreases with the regeneration times. BFC possible has two kinds of lindane removal mechanisms which includes bioaccumulation of core material and physical adsorption of membrane's hollows, and the bioaccumulation is the main removal way.

**Key words:** [bionics fat cell \(BFC\)](#) [interface polymerization](#) [lindane](#) [accumulation](#)

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