tecting their TM. Indian texts dating back two millennia state that neem could be used as an insect repellant, medicine, and cosmetic. W.R. Grace & Co. – Conn. filed patent applications (the US, European and New Zealand applications are considered here) covering a hydrophobic extract of the neem tree, an oil, for use as an insecticide and fungicide.[93] The chemical called Azadirachtin was identified as the active substance. A process to stabilize this chemical in water was patented, as was the stabilized form of the chemical.[94] The company did not apply for an Indian patent because the law at the time did not grant patents for agricultural products.[95] The foreign patents therefore drew a rapid response from India.

5. *The Neem Patent at the EPO*

The European Patent Office (EPO)[96] did not uphold the granting of the patent; it rejected it for lack of inventive step. Article 52(1) of the Munich Convention states that patents are granted on the basis of novelty, inventive step, and suitability of industrial application. Novelty is determined in relation to the state of the art, which according to Article 54(2) of the Munich convention means: "... everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application." Unlike the case for the US system, where there is a clear division between information originating inside and outside the state, there is no such distinction here. The EPO can consider prior art that could be embodied orally or in practice, and not simply according to printed sources. These provisions clearly protect TK, the bulk of which is not written. In the neem case, however, the EPO did not consider TK rights *per se*.

6. *Geographic Disparity in US Patent Law*

The patent on the chemicals derived from neem was upheld in the US. Indian TK did not serve as prior art. While some authors have suggested that it is unconstitutional for the US to retain geographic disparity in its patent laws (35 U.S.C. §102),[97] other authors note that by not allowing foreign material to serve as prior art, there is an incentive to commercialize products in the USA. This could lead to compensation for the keepers of TK through contract law.[98] Under this view, the US does not allow patents to encompass what is in the public domain, but instead encourages the develop-

93 *See generally* Emily Marden, *The Neem Tree Patent: International Conflict over the Commodification of Life*, 22 B.C. INT'L & COMP. L. REV. 279 (1999).
94 *See* U.S. Patent No. 5,281,618 (issued Jan 25, 1994).
95 *See* Indian Patent Act 1970 3(h) stating that a "method of agriculture or horticulture" is not an invention and therefore cannot be patented.
96 The European Patent Organization was put into place by the Munich Convention of 1973. As of March 2003 there were 28 member states. The system centralized the application process, while a valid patent is issued in as many states as requested in the application.
97 *See* Bagley, *supra* note 72.
98 *See* Craig Allen Nard, *In Defense of Geographic Disparity* 8 IIC 909 (2003).

ment of products that may otherwise remain undeveloped. In the case of neem, this would lead to the products derived from the plant being available to European customers only in the US but at 'monopolistic' pricing levels. Those in favor of geographic disparity would suggest:

> It is reasonable to assume that, absent a geographic distinction (*i.e.* absent patent rights), a pharmaceutical firm would not invest millions of dollars in commercialization efforts, thus depriving all consumers. Moreover, exploiting the patent in the rich United States market could lead to significant profits that would form part of a benefit sharing arrangement.[99]

The fear is that Grace's patent in the US will deny Indian access to the US market. This may in turn allow Grace to control the cash-crop market of neem in India, as well as potentially bidding the price of neem seed beyond the reach of competitors.[100]

There are arguments both for and against the retention of geographical disparity in US patent law. However, it is clear that the framers of the law were concerned with the development of innovation in the US. In 1836 they did not envisage that the disparity could allow a US company to effectively control the world wide market in a product, such as could be said for neem. While such a monopoly could effectively develop a product, there is a great risk that such a position in the market could be abused.

7. *Neem Patent in New Zealand*

The New Zealand Patent Office had also issued an equivalent patent to the EPO. The main difference is that the standard of novelty is determined according to prior publication in New Zealand. Unless the TK has been published in that country, there can be no countering the claim for lack of novelty. The neem patent in New Zealand was not revoked. This has raised a number of problems in New Zealand where a large indigenous community with extensive oral traditions exists.

In 2000, the government of New Zealand began a review of the Patents Act of 1953. In March 2002, the document Boundaries to Patentability[101] was released. Information from submissions was incorporated into the Patents Act Review on 28 July 2003. On 20 December 2004 a Draft Patents Bill was released for public consultation and submissions closed on 11 March 1995. A main goal of the proposed act is to tighten the procedures for granting patents, particularly by more rigorously determining what could be considered a valid invention. The previous 'presumption of patentability' has been removed and has been replaced with a 'balance of probabilities test'.

The Draft for Consultation Patents Bill[102] Part 1:3:c specifically addresses: "Maori concerns relating to the granting of patents for inventions derived from indigenous

99 *See id.* at 910.
100 *See* Kadidal, *supra* note 76, at 401.
101 Boundaries to Patentability. *See* http://med.govt.nz/templates/MultipageDocumentTOC__1451.aspx (3-17) (last visited Sept. 5, 2006).
102 Draft for Consultation Patents Bill http://www.med.govt.nz/upload/3358/draftbill.pdf (last Sept. 5, 2006).