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我国古植物学家成功获取反应气候变化和全球碳循环的准确信息

兰州大学古生物学创新研究小组，在自然科学基金资助下，运用古植物解剖学、植物生理学和有机地球化学等多学科交叉的方法，历经3年的悉心分析，发现了百万年甚至上千万年前化石银杏与现代银杏之间的关系，将植物化石气孔参数和碳同位素特征有机地联系在一起，可以成功获取气候变化和全球碳循环的准确信息，银杏叶片的多学科分析能够敏感地反映大气 CO_2 浓度及其环境的变化. 研究还证明：生长于中国和英国的现生银杏叶与中生代和第三纪化石银杏叶的碳同位素值很相似，这表明尽管经过了上千万年的演化，但银杏叶的碳吸收能力与水平衡功能并没有发生太大的变化，因此银杏叶化石是良好的古环境指标.

这项新的综合研究表明，化石植物叶片的气孔参数、碳同位素组成与大气 CO_2 浓度及其环境变化密切相关，活化石银杏的叶片准确记录了大气 CO_2 浓度变化的信息，它所反映的环境数据是目前所知精度最高的古大气 CO_2 浓度及其环境变化的测试指标，而且清楚反映出干旱环境和潮湿环境的变化.

该研究成果刊登在美国科学院主办的以自然科学为主的综合性学术刊物《PNAS》（美国科学院院报）上，引起了国内外同行的极大关注，荷兰 Utrecht 大学的古植物学家 Wolfram Kuerschner 评论："这是一项极其重要的、新颖的独创性研究". 英国 Sheffield 大学的古植物学家 David Beerling 说："这项研究激动人心，其突破性进展在古植物学领域具有创新性的意义". 这一最新研究成果采用多学科交叉的研究方法，把植物化石气孔参数、碳同位素组成与古大气 CO_2 浓度及其环境变化的研究带到一个崭新的高度.

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